Medical Lib.

American Journal of Public Health

And *The Nation's Health*

olume XX August 1930 Number 8

Bacteria in Pasteurized Milk

ROGERS and FRAZIER

Hygiene of the Towel

PEASE and HIMEBAUGH

The Common Cold

FROST

Cancer

WOOD

Fifty-Ninth Annual Meeting
Fort Worth, Texas, October 27--30, 1930

Published by the
American Public Health Association

GILLILAND BIOLOGICAL PRODUCTS

The GILLILAND Label on a package is a positive guaranty of the uniform purity and reliability of the product.

SMALL-POX VACCINE

Small-Pox Vaccine (GILLILAND) may be relied upon at all times, it being a pure and safe product of guaranteed potency. It is furnished in clear glass capillary tubes, hermetically sealed with needle for scarifying and bulb for expelling the vaccine.

Supplied in packages containing 1, 2, 5, and 10 tubes and needles.

TOXIN-ANTITOXIN

(Either horse or goat origin)

Toxin-Antitoxin Mixture (GILLILAND) creates an active immunity against diphtheria which begins in about 8 to 12 weeks and continues effective for many years — possibly for life.

Supplied in individual packages or in bulk for group immunizing.

TYPHOID VACCINE

(Plain or Combined)

Typhoid Vaccine (GILLILAND) is prepared in accordance with the technique employed in the Army Medical School and in laboratories especially adapted to its preparation.

Supplied in individual packages or in bulk for group immunizing.

State and Municipal Boards of Health, Hospitals and like institutions are given a special discount or quoted net on request.

THE GILLILAND LABORATORIES

MARIETTA, PA.

American Journal of Public Health
and THE NATION'S HEALTH Vol. XII No. 8

Volume XX August, 1930 Number 8

Significance of Thermophilic Bacteria in Pasteurized Milk*

L. A. ROGERS, D. Sc., AND W. C. FRAZIER, PH. D.

Dairy Research Laboratories, U. S. Department of Agriculture, Washington, D. C.

IN discussing this subject we feel that it is best to attempt to answer certain questions which probably exist, or have existed at some time, in the mind of everyone concerned with the control of city milk.

What are thermophilic bacteria? It may not be necessary to go into detail, but it is well to define rather exactly what we propose to discuss. We shall include not only the obligate thermophiles which grow only at temperatures above the usual limits of bacterial growth but also the facultative thermophiles which grow normally at ordinary temperatures and are able to multiply at 50° C. or higher.

There are no natural limits for these groups. The obligate thermophiles have a temperature range running as high as 85° C. Some facultative thermophiles grow as low as 20° C. and as high as 60° C. We are interested in those which grow at the usual pasteurizing temperatures and those which are unable to grow at this temperature but grow readily at a few degrees below this point.

The upper thermal limit of the growth of any particular strain of bacteria is much more sharply defined than the lower. Bacteria which are inhibited or destroyed at 145° F. may grow rapidly at 140° F.

The thermo-resistant bacteria which, although they do not form spores, survive pasteurization, should not be confused with the thermophiles. Both groups of bacteria sometimes produce pinpoint colonies on agar plates but otherwise there is no connection between them.

There has been a tendency to look upon the thermophiles as a natural group of related bacteria. On the contrary it is a hetero-

* Read at a Joint Session of the Food, Drugs and Nutrition and Public Health Engineering Sections of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 3, 1929.

When writing to Advertisers, say you saw it in the JOURNAL

geneous collection including representatives of many unrelated species. They should be regarded as variants which may occur in any species and which usually differ from the normal only in their ability to grow at high temperatures.

We find among the thermophiles representatives of the streptococci, the lactobacilli, the colon group, anaerobic, and especially aerobic spore-forming rods. The last is the group most commonly found in pasteurized milk.

What is the source of thermophiles in milk? They occur naturally under conditions which make it easy to account for their presence in milk. Thermophilic bacteria were first observed in thermal springs where they sometimes grow at temperatures over 80° C. They are known to occur in fermenting manure and other vegetable material. It would probably be possible to isolate thermophiles from almost any sample of cow manure. From these sources they become widely distributed and may be found in soil, dust, on the leaves of plants, and the surface of any exposed material.

Under some conditions the surface of the soil may reach temperatures high enough to favor the growth of thermophiles and it is possible that under some circumstances they may grow in the soil at relatively low temperatures.

We consider it very improbable that bacteria of this type ever actually live in the udder. It is true that milk drawn direct from the udder into test tubes and held at 50 or 55° C. will sometimes reduce litmus, but it does not necessarily follow that this milk is inoculated with thermophiles from the ducts of the udder. Very rigid precautions are necessary positively to exclude outside contamination. However, there are many things beside bacteria which reduce methylene blue and this reaction cannot be accepted as proof of bacterial growth without proper checks.

We have examined the udders of a large number of cows without securing any positive evidence of the presence of thermophilic bacteria. However, it is not necessary to assume that these bacteria grow in the udder to account for their almost universal presence in mixed herd milk. It is probable that almost any sample of mixed milk from the ordinary farm if held at 50–55° C. would show development of thermophiles.

Under what conditions do thermophiles attain high numbers in pasteurized milk? There are a number of conditions which may work singly or jointly to produce this result. One is an exceptionally high initial contamination before pasteurization. The milk from some individual farm may come to the pasteurizing plant heavily infected

with thermophiles. This is not common but in one plant investigated it was found that the milk from one farm gave a nearly pure culture of thermophilic bacteria.

The milk may be inoculated before pasteurization by adding to the batch milk returned from the wagons. If, as frequently happens, the end of the previous day's run was high in thermophiles, this may serve as an inoculation for the new run.

The milk may be inoculated from defective equipment, such as leaks which permit milk to stand in the lining of the vat and subsequently, when highly charged with thermophiles, to seep out into the pasteurizer.

The milk may also become infected from the foam and residue left from the previous batch. Thermophiles may also multiply in the pasteurizer when some part of the milk is not maintained at the proper temperature. The reduction of the pasteurizing temperature even a few degrees brings the milk within the growth range of many varieties which cannot grow at 145° F. This may happen in dead ends of pipes, possibly in corners of vats not reached by the agitators, and especially in the foam. It is well known that the foam is several degrees lower in temperature than the milk under it and not only do the more resistant bacteria carried by the foam survive, but it acts as an incubator for many types of thermophilic bacteria.

The most common cause of high thermophilic counts is the building up in numbers when successive batches are pasteurized in the same vat without adequate cleaning between runs. There is some

TABLE I

INCREASE IN THERMOPHILIC BACTERIA IN PASTEURIZER VATS

Vat No.	Run	Reduction Time at 55° C.		Direct Counts of Streptobacilli	
		Before Past. Hrs.: Min.	After Past. Hrs.: Min.	Before Past.	After Past.
I	1	8:41	8:01	20,000	20,000
	2	6:59	4:38	42,000	345,000
	3	6:09	1:18	121,000	4,500,000
	4	2:58	0:18	1,850,000	22,000,000
II	1	1:57	0:33	1,420,000	15,500,000
	2	2:34	0:48	515,000	8,760,000
	3	6:10 (Neg.)	1:26	30,000	4,850,000
	4	4:21	0:33	970,000	14,000,000
III	1	10:00 (Neg.)	9:54	0	0
	2	2:53	0:31	1,000,000	8,500,000
	3	3:47	0:50	130,000	12,600,000
	4	4:13	0:26	324,000	13,600,000
	5*	4:20 (Neg.)	3:33 (Neg.)	173,000	348,000

* Milk held in vat for 50 min. at 143° C.

multiplication in the first batch, started by the thermophiles which are almost invariably present in mixed milk. The foam and milk left in the bottom of the vat serve as an inoculation for the following run so that if five or six batches of milk are pasteurized in one vat the later ones are likely to have a high count. In Table I is shown how the bacteria which grow at high temperatures may grow in the vats and build up in numbers by the end of the last run of the day. The experiments were conducted in a large milk plant under normal plant conditions.

An examination of the results in Vat I shows a smooth and regular building up of thermophiles from very few after the first run to 22,000,000 at the end of the fourth. It will be noted that the reduction times correspond very well with the numbers of bacteria.

Vat II is an example of apparently bad contamination with thermophiles before the first run. The vat had evidently not been properly cleaned and scalded before the beginning of the day's run. This heavy initial contamination was reduced to some extent after several successive flushings with vats of milk but had started to build up again by the end of the day as is evidenced by the increase to 14,000,000 at the end of the fourth run.

Vat III shows a building up process for the first four runs of the day when the normal procedure was being carried out in the pasteurization of the milk. At the time of the fifth run, however, there was a break-down in the bottler and the milk had to be held for a longer time at 143° F. before the vat could be drained onto the cooler. In this case the milk was held over 50 minutes at pasteurizing temperature. The result was a marked decrease in the number of high temperature bacteria: from 13,600,000 at the end of the fourth run to 348,000 at the end of the fifth. This would seem to indicate that these particular bacteria were not favored by the pasteurization temperature and when the longer period allowed the foam, splash, etc., to attain a higher temperature their numbers were materially reduced. This is in keeping with results obtained by one of us on thermophilic bacteria from this same milk plant at another time. It was found that the bacteria increased rapidly in the foam which was at a lower temperature than the milk, but decreased rapidly in the milk or in foam brought up to the pasteurizing temperature.

What does the thermophilic count indicate? It indicates that one or more of the conditions which we have enumerated exist in the pasteurizing plant. The plant may be receiving unusual contamination; it may be repasteurizing milk brought back from the wagons; the walls of the pasteurizer may have a thin layer of cooked milk in which

thermophiles may grow; the construction of the pasteurizer may be defective so that some of the milk fails to reach the pasteurizing temperature; there may be an excessive amount of foam which is not heated to temperature; or the vats may not be cleaned between runs.

The value of the thermophilic count to the control officer is much the same as the value of the ordinary count. We do not count the bacteria in pasteurized milk because we are especially concerned with the destruction of the particular types of bacteria whose colonies grow on an agar plate. We make these counts because by them we can tell with reasonable certainty whether the milk has been heated to a temperature which will render it free from pathogenic bacteria; whether the plant is operated in a clean and efficient manner; and whether the milk is properly cooled between pasteurization and delivery.

There is no reason to think that the thermophilic bacteria are more harmful in milk than their relatives growing at lower temperatures. In fact since most of them grow very slowly or not at all at low temperatures there is a tendency to regard the thermophilic count as of no significance. Some have even advised to use culture media on which their colonies will not grow and to pretend that they do not exist. This ostrich-like attitude does not appeal to bacteriologists who believe that the plate count should be made to show as correctly and completely as possible the conditions which exist in the milk.

A control officer should welcome a technic which will enable him to detect those pasteurizing plants which are defective and make it possible for milk to leak into the walls of the vat, or which do not heat all of the milk to the required temperature. To be assured that between runs the vats are properly washed and steamed may not be a matter of major importance, but if the omission of this serves to obscure more serious defects it should be corrected.

On the whole we believe that an estimation of the number of thermophiles should be made of real service in the control of pasteurization. However, it is not sufficient to tell a dealer that his milk contains a large number of thermophilic bacteria and that this number must be reduced. Ordinary bacteria are a deep enough mystery for the average milkman. The inspector should be able to point out wherein his methods are defective and how they may be remedied.

Hygiene of the Towel

HERBERT D. PEASE, M. D., F. A. P. H. A., AND LESTER C. HIMEBAUGH

Pease Laboratories, New York, N. Y.

PUBLIC health authorities have expressed an almost universal desire to banish the common towel. In an effort to develop more concrete evidence that might answer the questions listed in this paper, the authors have made the bacteriological and physical studies described after each. Standard size towels were used in the experiments.

Question 1—When the hands are washed in the usual manner, are bacteria transferred to the towel in appreciable numbers?

The finger tips were inoculated with a 24-hour broth culture of *Flavobacterium lutescens,* a bright yellow chromogenic bacillus. They were held before an electric fan 15 minutes, drying the skin even beyond its normal condition. The hands were then washed with a toilet soap for 10 seconds, rinsed for 5 seconds to remove the soap, and wiped on a sterile Turkish hand towel. After 30 minutes' drying, the towel was examined for the number of bacteria present. Disks 2″ in diameter were cut from the center of the towel and one was placed in 100 c.c. of sterile physiological salt solution. Appropriate dilutions were plated in standard beef extract agar and incubated for 2 days at 37° C. when the number of yellow organisms developed from the 2″ disk was determined.

A second disk taken from the same towel was placed on a sterile agar surface for 10 seconds. Upon removal, an impression of the towel and some of the bacteria which had been present were left on the plate, which was also incubated for 2 days at 37° C.

In the case of the Turkish hand towel 48,000 bacteria per 2″ disk were removed from the finger tips, while the huck towel removed 15,000; so that in common washing practice, not only are large numbers of bacteria apparently transferred to towels, but, comparatively, Turkish towels remove larger quantities than huck.

Question 2—When several individuals use a common towel, may infectious bacteria be transferred from one individual to another?

Three separate investigations were conducted, under both exaggerated and ordinary conditions.

The first series were hand washing tests to show whether bacteria are transferred to subsequent users from original ones.

Individual 1 washed the hands thoroughly with soap and warm water for 1 minute. They were then dried by electric fan. One c.c. of a 24-hour broth culture of *Flavobacterium lutescens* was rubbed over both hands, which were again electrically dried for 15 minutes, and then washed with tap water at about 37° C. and cake toilet soap for 10 seconds; then rinsed for 5 seconds with running tap water and dried thoroughly on a sterile Turkish hand towel. Individual 2 washed his hands thoroughly with soap and warm water for a period of 1 minute, the degree of efficiency of which was determined by finger-printing a nutrient agar plate subsequently incubated at 37° C. for 48 hours. He then dried the hands on the towel which had been used 5 minutes previously by individual 1. After a simple drying of 20 seconds, finger-prints were again taken. The first photograph marked "No. 5 control" (Plate A) indicates a small number of bacteria present after the washing process.

Individual 2 then dried the hands on a towel which had been used 24 hours before by individual 1. After a simple drying of 20 seconds, finger-prints were again taken. The photograph marked "Turkish towel used 24 hours before" shows a much larger number of bacteria than photograph "No. 5 control." Several bright yellow colonies demonstrated a transfer by the towel from individual 1.

Rapid bacterial destruction through desiccation in the absence of nutrient material has been generally postulated. The results of tests by individual 2 after both 5- and 24-hour intervals were somewhat similar to those obtained after the 5-minute interval and indicated duration of viability of bacteria on the towel contamination by individual 1. Small numbers of bacteria died by reason of the longer periods of sojourn on the towel, but a major number remained, ready to contaminate the hands of anyone using the towel the second time.

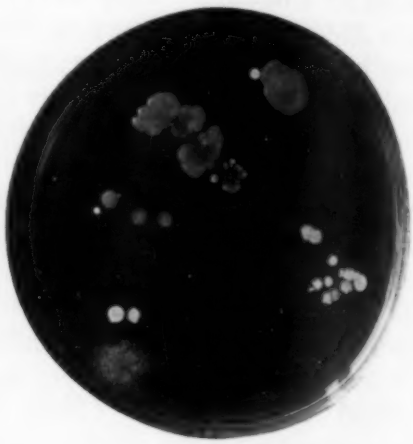
To compare the action of huck hand towels, this entire series of tests with Turkish hand towels was repeated, using huck towels. A slightly greater number of bacteria were transferred to the hands at the end of the 5- and 24-hour periods (Plate A). This was confirmed in several tests and indicates readier pick-up of bacteria from the flat surfaces of the huck towel than from the rough surface of the Turkish hand towel.

The second series of studies comprised hand washing tests to demonstrate whether or not multiple infections can be transferred to each user of the common towel; i.e., to indicate what is apt to occur when a towel is infected by several people.

PLATE A

IMPRESSION INOCULATIONS ON AGAR BY FINGER TIPS AFTER WASHING AND RINSING, THEN DRYING ON USED TURKISH HAND TOWEL AND ON USED HUCK TOWEL

1—*No. 5 Control, Washed Hands*



2—*No. 5 Turkish Towel Used 24 Hours Before*

3—*No. 6 Control, Washed Hands*

4—*No. 6 Huck Towel Used 24 Hours Before*

In this series of studies four individuals participated, employing the same technic. Individual 1 washed his hands thoroughly with soap and warm water for 1 minute, afterward drying them for 15 minutes. One c.c. of a 24-hour broth culture of the bright yellow chromogen *Flavobacterium lutescens* was rubbed over the hands, which were dried as before, then washed with tap water at approximately 37° C. and cake toilet soap for 10 seconds. The hands were then rinsed for 5 seconds and dried on a sterile Turkish hand towel.

Individual 2 repeated the same process with hands inoculated with 1 c.c. of a 48-hour broth culture of the easily distinguishable, red *B. prodigiosus*. Finger-prints on agar plates were made after wiping the hands on the towel infected by individual 1. The plates were incubated for 48 hours at 30° C., when they showed many bright yellow colonies and a still larger number of red colonies, indicating infection of the hands of individual 2 by the organism left on the towel by individual 1.

Individual 3 repeated the same process with hands inoculated with 1 c.c. of a 24-hour broth culture of the light orange *M. aureus*, to distinguish this organism from those used in inoculating the hands of individuals 1 and 2. Finger-prints on agar plates were made after wiping the hands on the towel previously used by individuals 1 and 2. The plates were incubated for 48 hours at 30° C. They showed many bright yellow and red colonies and a still larger number of light orange colonies, indicating that individual 3 had become infected by the organisms left on the towel by individuals 1 and 2.

Individual 4, after thoroughly washing the hands, employed the towel previously used by individuals 1, 2, and 3. After the usual wiping process, finger-prints were made as before. The plates showed the presence of all three organisms, indicating that the hands of individual 4 had become infected with all three organisms left on the towel by the three previous users.

A huck hand towel was used in a further series of tests. The results were identical, except the numbers of bacteria transferred to individuals 2, 3, and 4 were greater.

It was thus clearly indicated that infectious bacteria may be easily transferred in increasing varieties and numbers through the use of the common towel, especially by the huck hand variety.

The next series of studies considered the accumulation of bacteria on the towel when used by different individuals and whether the varieties of bacteria increased when the towel was used by them. Turkish and huck hand towels were used on four occasions by four different individuals as previously described. Imprints were made after one individual had used the towel and again after four had used it, when it was observed to carry decidedly increased numbers of bacteria.

A further series of tests was conducted to show whether an increase in the varieties as well as numbers of bacteria would occur. When one person used the Turkish towel, an average of over ten types of bacteria was found. The same towel after use by four individuals showed an average of over twenty types of bacteria.

The organisms used in the studies thus far, with the exception of *Micrococcus aureus*, would be classifiable as non-pathogenic.

Many have believed that pathogenic bacteria die rapidly through desiccation, even in the absence of sunlight. If infectious organisms such as might find their way to the common towel were capable of remaining alive over periods of 24 or 48 hours, a real danger would be indicated when the ease of transfer as shown in the previous results is considered.

The next series of studies was conducted to determine whether various species of pathogenic organisms would remain alive for periods of 24 and 48 hours. Sterile disks 2″ in diameter were inoculated with cultures of the following infectious organisms: *Bacillus typhosus, Bacillus paratyphosus "B," Bacillus diphtheriae, Streptococcus hemolyticus scarlatinae, Streptococcus hemolyticus, Pneumococcus Type II.* In each case the organisms were grown on a suitable solid culture medium and, to avoid carrying over to the towel any culture medium which might aid the organism in remaining alive, only the surface growth was used. After inoculation, the disks were placed in clay-top Petri dishes at room temperature and subjected only to a north light. At intervals of 24 and 48 hours, disks of each type of towelling were removed and small portions transferred to suitable culture media. After incubation for 48 to 72 hours, macroscopic and microscopic examinations were made.

TABLE I

VIABILITY OF PATHOGENIC MICROÖRGANISMS ON DRY TOWELLING
(In absence of direct sunlight)

Test Organisms	Alive at end of 24 hours		Alive at end of 48 hours	
	Turkish	Huck	Turkish	Huck
B. typhosus	+	+	+	+
B. paratyphosus "B"	+	+	+	+
B. diphtheriae	+	+	+	+
Streptococcus hemolyticus scarlatinae	+	+	+	+
Streptococcus hemolyticus	+	+	+	−
Pneumococcus Type II	+	+	−	−

Living infectious organisms of all these varieties were present on both Turkish and huck hand towels for a period of 24 hours. No pneumococcus survived for 48 hours. *Streptococcus hemolyticus* may or may not die under these conditions within 48 hours. Apparently, therefore, real dangers from infectious organisms exist in the common towel for at least 48 hours after primary contamination.

Question 3—Will the repeated use for several days by one individual show an accumulation of bacteria on the towel?—what is the sanitary significance of such accumulations?

Studies were conducted to bring out the possible accumulation of

bacteria during the normal home use of the large Turkish towel upon the entire body; the small Turkish towel upon the hands and face; and the huck towel upon the hands and face. Four individuals participated in each of the three series.

LARGE TURKISH TOWELS

Twenty-four large Turkish towels were washed, wrapped separately in paper and sterilized in an autoclave. Six of these prepared towels were given to each of four persons, one of which was used but once to dry the entire surface of the body and was returned to its wrapper and the laboratory for testing. The second was used in the same way on each of 2 consecutive days and then wrapped and returned. The third was likewise employed on each of 3 consecutive days and the fourth, fifth and sixth towels were similarly used on 4, 5 and 6 consecutive days respectively. Between times they hung on the bathroom towel racks under normal home conditions. After each period, determinations were made in the laboratory of the accumulated numbers of bacteria on the towels during the several periods covered. Four 2″ disks were removed from different parts of the towels. Three disks were placed in 100 c.c. of sterile physiological salt solution and appropriate dilutions were plated separately in standard beef extract broth. The average of the results for the three disks was taken as the bacterial count for each towel used for the given time period. The results appear in Table II.

TABLE II

BACTERIAL COUNTS FROM TWO-INCH DISKS TAKEN FROM LARGE TURKISH TOWELS USED BY ONE INDIVIDUAL ONE BATH A DAY—FOR PERIODS OF ONE TO SIX DAYS

Number of Days Towel Was Used	Individual 1	Individual 2	Individual 3	Individual 4
1	26,500	38,000	700	4,500
2	17,500	180,000	4,700	18,000
3	46,500	110,000	16,000	9,600
4	100,000	410,000	38,000	43,000
5	100,000	300,000	203,000	81,000
6	240,000	310,000	800,000	178,000

The remaining disk from each of the towels was imprinted on a nutrient agar plate to indicate the distribution of the bacteria on the disk and their increase in numbers. The plates were incubated at 37° C. for 48 hours, and one set including the control was photographed (Plate B).

In each case the imprints indicated a decided increase in the number of bacteria. In the photographs the loose threads or portions of threads may be distinguished readily from the colonies of bacteria.

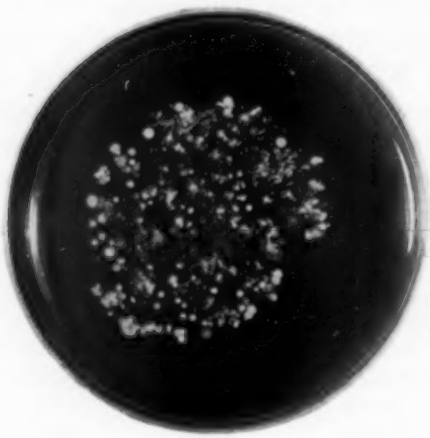
The results indicate clearly that when a bath towel is used more

PLATE B

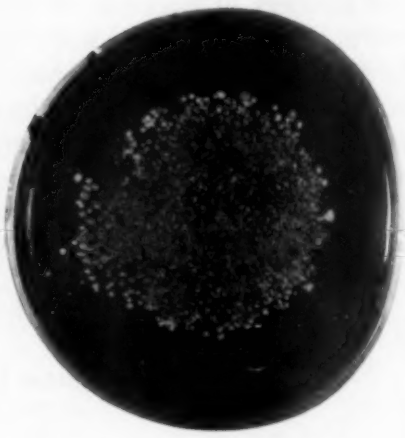
IMPRESSION INOCULATIONS ON AGAR BY DISKS CUT FROM TURKISH BATH TOWEL

1—*Turkish Towel Before Using*

2—*Large Turkish Towel Used Once*



3—*Large Turkish Towel Used 3 Times*



4—*Large Turkish Towel Used 6 Times*

than once bacteria accumulate on it. Variations in results from the towels used by different individuals were remarkably small.

TURKISH HAND TOWELS

A similar series of tests was conducted by four individuals using a small Turkish hand towel, morning and night, to dry the face and hands, during each of six periods, each period ranging from 1 to 6 days. The results appear in Table III.

The agar plate impressions of the 2″ disks taken from the towel used by the four individuals showed approximately the same graphic

TABLE III

AVERAGE BACTERIAL COUNTS ON TWO-INCH DISKS TAKEN FROM TURKISH HAND TOWELS EACH USED BY ONE INDIVIDUAL—MORNING AND NIGHT—FOR A PERIOD OF 1 TO 6 DAYS

Number of Days Towel Was Used	Individual 1		Individual 2		Individual 3		Individual 4	
	Number of times used	Bacterial Counts	Number of times used	Bacterial Counts	Number of times used	Bacterial Counts	Number of times used	Bacterial Counts
1	3	3,800	5	25,500	4	11,500	5	20,500
2	6	9,000	10	55,000	8	9,900	8	48,000
3	10	17,800	15	54,000	12	16,000	13	57,000
4	15	83,000	20	140,000	18	84,000	18	113,000
5	17	70,000	25	143,000	22	180,000	24	95,000
6	20	174,000	30	294,000	28	210,000	30	133,000

results as those obtained in the tests with the Turkish bath towel. The numbers of bacteria were not quite so great but clearly indicated the accumulation and survival of bacteria during different periods of use. Again there were remarkably small variations between individuals for the various time periods.

HUCK HAND TOWELS

Another series of tests was conducted exactly as those previously described for the Turkish hand towels. The results are given in Table IV.

TABLE IV

BACTERIAL COUNTS ON TWO-INCH DISKS TAKEN FROM HUCK HAND TOWELS EACH USED BY ONE INDIVIDUAL—MORNING AND NIGHT—FOR A PERIOD OF 1 TO 6 DAYS

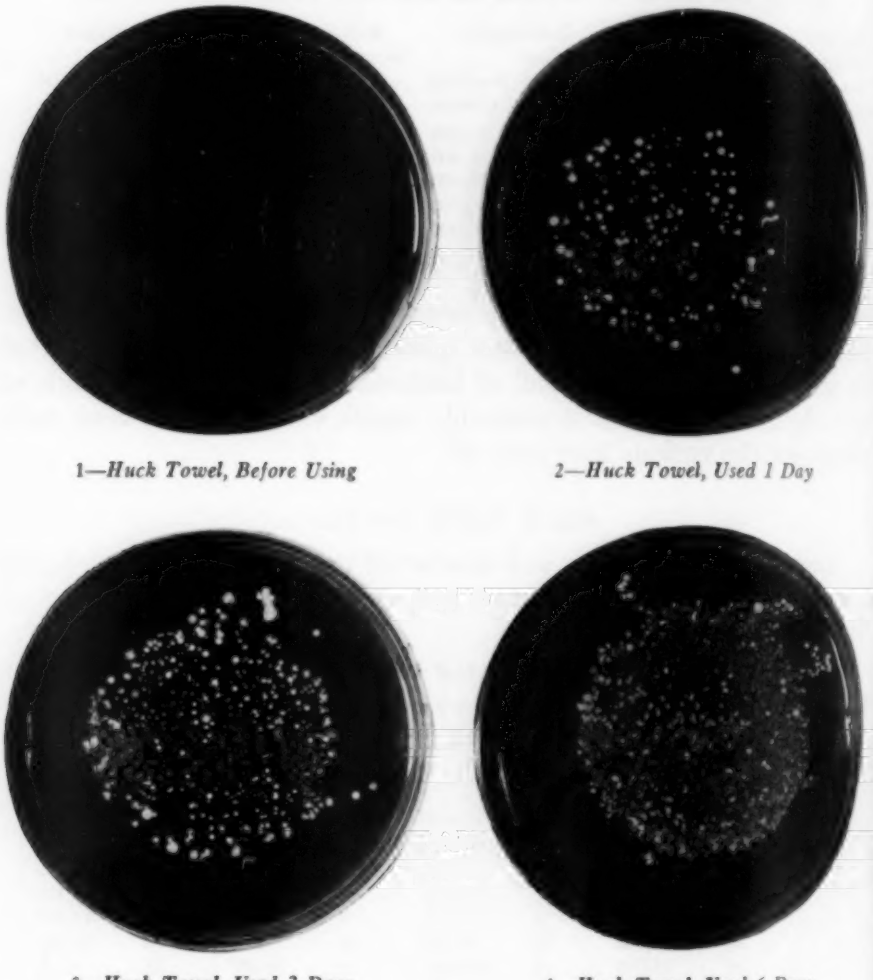
Number of Days Towel Was Used	Individual 1		Individual 2		Individual 3		Individual 4	
	Number of times used	Bacterial Counts	Number of times used	Bacterial Counts	Number of times used	Bacterial Counts	Number of times used	Bacterial Counts
1	2	12,500	6	25,500	5	12,500	6	11,000
2	6	27,000	12	60,000	6	48,500	9	18,500
3	9	38,500	15	75,000	9	38,500	16	14,500
4	16	52,000	20	44,500	21	13,000	18	38,000
5	15	44,000	25	150,000	22	56,000	21	6,800
6	17	96,500	30	180,000	24	54,500	28	15,000

Substantially the same photographic results were obtained from disk tests as in the two preceding studies (Plate C). A comparison of photographs of the huck with those of the small Turkish towel indicated a larger number of organisms in the case of the former. For comparison, averages of the results obtained on the three types of towels by each of the four individuals are given in Table V, which indicates that larger numbers of bacteria were removed and accumulated by both types of Turkish towelling than by the huck towelling.

The results of these tests decisively show the accumulation of bacteria on a towel used more than once by even one individual. If the

PLATE C

IMPRESSION INOCULATIONS ON AGAR BY DISKS CUT FROM HUCK HAND TOWEL



1—Huck Towel, Before Using

2—Huck Towel, Used 1 Day

3—Huck Towel, Used 3 Days

4—Huck Towel, Used 6 Days

same towel were used by several, similar results should be obtained.

Considering the sanitary significances of such accumulations of bacteria, the results obtained in answering *Question 2* indicate that the individual who uses the same towel on the face, hands or body more than once will not only remove a considerable number of bacteria from the skin but will simultaneously become re-inoculated with the bacteria which he left on the towel previously. The dangers of this practice might be illustrated by an individual who with hands which had become accidentally contaminated with typhoid bacilli washes them ineffectively and dries them on the towel. With the

TABLE V

AVERAGE BACTERIAL COUNTS ON TWO-INCH DISKS TAKEN FROM TURKISH BATH TOWELS, TURKISH HAND TOWELS, AND HUCK HAND TOWELS

Number of Days Towels Were Used	Turkish Bath Towel	Turkish Hand Towel	Huck Hand Towel
1	17,400	15,200	15,300
2	54,500	30,400	36,000
3	70,000	36,400	42,800
4	148,000	105,000	36,500
5	171,000	122,000	64,200
6	382,000	202,000	61,500

next use of the towel, perhaps hours or days later, the hands would re-acquire some of the bacilli which had been previously transferred to the towel and the possibility of infection of food or anything entering the mouth would be substantially as great as at the time of the original contaminations. The numbers of typhoid bacilli would likely be smaller but the opportunity for infection would remain.

In view of these studies, the use of the individual towel more than once must be considered as potentially menacing, and its repeated use, especially over periods of days, should be avoided.

Question 4—Which of the three types of towels—Turkish, huck, and paper—will prove most efficient in the removal of bacteria from the skin?

The results of the foregoing studies have clearly shown the towel as an important factor in removing bacteria from the skin. The selection of the type of towel capable of removing the largest numbers of organisms from the skin therefore becomes important as a sanitary measure. To this end, determinations were made of the numbers of bacteria remaining on the skin after the use of Turkish, huck, and paper types of hand towelling.

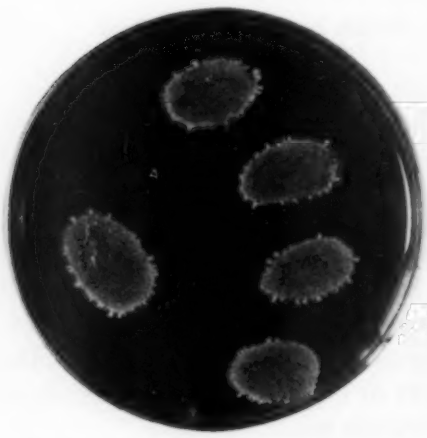
The technic employed was identical with that in the first series of tests to answer *Question 2*. Four individuals participated. Finger-prints before washing showed substantial numbers of organisms and photographs of such control finger-prints show the results from the unwashed hands. During the actual testing, no finger-prints of the unwashed hands could be made, as this would have removed sufficient numbers of bacteria to vitiate the results (Plate D).

After washing the hands, each individual used a Turkish hand towel, the huck, and the paper hand towel in successive tests. When the hands were dried, imprints on agar plates were made and the latter incubated for 48 hours at 37° C.

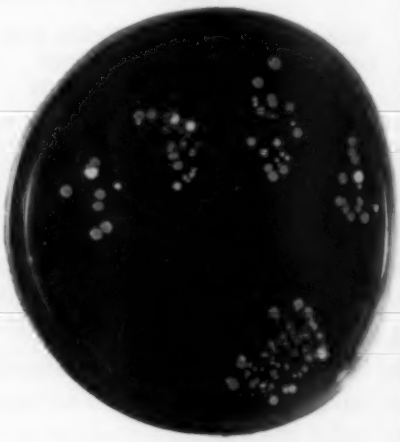
Photographs of the finger-prints of one individual demonstrate the differences found. These are representative of the results obtained from the tests on all four individuals. They indicate that smaller

PLATE D

IMPRESSION INOCULATIONS ON AGAR BY INOCULATED FINGER TIPS



1—*Inoculated Hands, Before Washing*



2—*Inoculated Hands, After Washing. Turkish Towel Used*

3—*Inoculated Hands, After Washing. Huck Towel Used*

4—*Inoculated Hands, After Washing. Paper Towel Used*

numbers of bacteria remained on the hands when using the Turkish hand towel than with the huck hand towel. Substantiating the previous studies, the largest number of organisms remained on the hands when the paper towel was used, which was to have been expected, since one usually blots with a paper towel rather than rubs the skin dry (Plate D). A definite guide is thus afforded indicating the Turkish towel as more efficient with one using than either the huck or the paper towel. The paper towel is employed but once, the others should be used but once also.

Question 5—Which of the three types of towels—Turkish, huck, or paper—will be most efficient in removing visible dirt from the skin?

From observation and comparison of the three types of towelling, the Turkish, having a loose, flexible thread with a rough yet pliable exterior and therefore an increased surface for contact with the skin, should be able to remove from the uneven surface of the hands a larger amount of visible dirt than the huck, and still more than the paper towel. To help demonstrate the difference between the action of the several types of towelling, exaggerated conditions of dirty skin were produced in the first of a series of tests by rubbing, with a little water, 0.1 gm. of lamp black onto the hands. After it had dried for 15 minutes, they were washed as usual for 10 seconds with cake soap and water. After rinsing for 5 seconds they were dried on the Turkish hand towel. Observations of hands and towel were recorded. The day following, the same tests were made by four individuals using the huck hand towel and repeated the next day using paper towels.

The superiority of the Turkish type of towel was again evidenced since larger amounts of lamp black were retained by it than by the huck and much more than by the paper towel, while the skin of the Turkish towel user was cleaner than that of those who used either of the others.

Because so substantial an amount of lamp black had been used in the first tests, they were repeated with as small quantities of lamp black as 0.01 and 0.002 gm. Little difference could be observed in the appearance of the towels as between the Turkish and huck varieties, but again the hands of each individual were cleaner where the Turkish type had been employed. Although crude, this series of tests demonstrates that the Turkish hand towel is superior to the huck or paper type in removing foreign matter from the skin. Single service hand towels, preferably of the Turkish type, give the cleanest appearing hands.

SUMMARY

The results of the investigation show some of the effects of the use or misuse of towels and the important part towels may play in the spread of bacteria which may be of disease producing types.

Although public health officials have recognized that the skin, especially that of the hands, may be one of the most important modes of transfer of disease producing organisms, and that diseases other than those of known bacterial origin may also be readily carried by the same means, the part played by the misuse of towels and the relative merits of types of towels have not received so much attention. Tests to secure evidence regarding these points indicate that:

Bacteria are transferred from the hands to the towel in surprisingly large numbers.

Bacteria are readily transferred from one user to another through the medium of the towel.

Most of the common disease producing bacteria, even though in a dry state, may remain alive on the towel for at least 24 hours and generally longer, making the common towel a constant and continued source of danger.

When the towel is used repeatedly by the same individual the numbers of bacteria on and in it are increased and some of these in turn may be restored to the hands of the user. Potential danger exists of a possible re-infection of the hands with disease producing organisms left on the towel by prior use. Repeated drying with an individual towel is not a good sanitary practice.

The Turkish towel, owing to its construction and a consequently greater number of points of contact with the skin, removes greater numbers of bacteria and dirt particles from the skin than the huck towel or the paper towel.

CONCLUSIONS

The common towel in public or in the home is an ever present menace as a potential carrier of disease producing organisms which thus may be easily transferred to the hands of each new user.

Whether for drying the face, hands, or entire body, the employment of an individual single service towel constitutes a wise precaution against excessive numbers of relatively harmless or of disease producing contaminations by bacteria already on previously used towels.

The Turkish towel is more efficient than the huck or the paper towel in removing bacteria and dirt from the skin.

Most Automobile Accidents Due to Law Violation

CAREFULLY compiled statistics in California show that traffic laws have been violated in connection with 60 per cent of the fatal automobile accidents in that state and that inexperienced drivers are involved in about 80 per cent of all fatal motor mishaps. These facts give a very practicable basis for launching a definite campaign against highway accidents that offers hope for a long time overdue improvement in the accident rate.

In California a system of recording accidents and law violations has been adopted. This includes the name of the drivers involved. When three charges are found against the same individual within a 6-months period, the individual is required to undergo a special examination to determine his competency as a driver. In view of the statistical evidence cited above the California system, if prosecuted vigorously, ought to bring about a significant improvement in the automobile accident situation.

Problems in Public Health Administration*

GEORGE C. RUHLAND, M. D., F. A. P. H. A.

Health Commissioner, Syracuse, N. Y.

TO casual observation, the creation of a special section for health officers in the American Public Health Association must seem somewhat unusual, in view of the fact that this Association was conceived and brought into being primarily by and for health officers. However, a moment's reflection will make clear that this apparently paradoxical situation is after all a very natural outcome of growth and progress. With the development of the various special activities that have been adopted into standard modern health department practice, it was inevitable that these various specialties would seek and secure a separate place in the organization where their particular problems could be discussed by fellow craftsmen.

After all, though the members of this Association are all devoted to the same general interest—that of promoting the public health—the particular interests of the various groups are not quite the same, nor do they even speak the same technical language. Separation into groups of specialties was therefore unavoidable, and also desirable for the development of the Association and the advancement of its work.

In the evolution of modern public health service, the health officer finds himself little by little further separated from activities which he formerly undertook personally. Gradually he ceases to be diagnostician, registrar of vital statistics, quarantine officer, milk inspector, and sanitary police officer all in one. The fact is that the general practitioner in public health, as in the practice of medicine, is rapidly going out of fashion; and in his place a new type of health officer appears—one who no longer attempts to be a clinician, sanitary inspector, etc., but who, in conformity with the demands of a larger and modernized service, is first and foremost an organizer and administrator.

This does not mean that the health officer surrenders his interest in any one of the various activities represented in modern health work. On the contrary, he must have intimate knowledge of all these matters

* Read before the Health Officers Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 1, 1929.

in order that he may properly evaluate their importance and competently direct the development of the service of which he is the responsible chief.

However, what must be realized and understood is that public health, fortunately, is emerging out of the one-man type of service and in place thereof service through organization or group practice has come into being. Just as in the practice of medicine we have come to appreciate that no one man can hope to be fully familiar and equally efficient in all the various specialties into which medical knowledge has extended, so too in the various activities of public health no one man can expect to be equally competent, even if he were physically able to undertake all of the work required in modern service. Public health therefore functions through specialists in its various activities.

Although a number of health departments for many years have been organized and functioning under this enlarged and modern service plan, it would appear from the papers annually read by the health officers at the meetings of this Association that they have not yet awakened to the fact that their service has changed, and their relationship to that service calls for a consideration of new and special problems that are peculiarly and specifically their responsibility.

Why should the health officer undertake to present papers on problems in epidemiology, vital statistics, and child welfare, or any one of the specialties, when he has in his organization those who are presumably expert in these matters and who can handle these subjects with at least equal competency? The explanation is, of course, that we have not apparently realized that we have new and very important responsibilities as administrators, and are still following the traditional practice of the past.

It is most stimulating and promising to find a special place given in the present program at which health officers are to discuss problems that are essentially of an administrative nature.

In a general way, the special responsibilities of the health officer may be classified under four major groupings:

1. Those that have to do immediately with the organization and management of the service as a department activity.
2. Those that deal with the department in its relation to other branches of government.
3. Those that establish coöperation and deal with voluntary health agencies.
4. Those that affect the relationship of the public in general and its special organized groups such as the medical societies, parent-teacher associations, etc.

It is obviously beyond the scope of this paper to discuss every one of these service relationships even superficially. I propose to deal

only with the first group of administrative problems in the above list —those that deal with what may be called "internal affairs," and with only a few of these.

This Association, through its Committee on Administrative Practice, has furnished the health officer in the *Appraisal Form* a valuable guide for the development of his service.

Bulletin 164, on Municipal Health Department Practice, published by the U. S. Public Health Service, *Community Health Organization,* edited by Professor Hiscock, and the record forms for municipal public health service worked out by another committee of this Association are, of course, familiar to you as useful references and aids in the organization and development of service. However, organization and service depend ultimately on the human equation, and propose such problems as competent and qualified workers, hours of service, compensation, sick leave, disciplinary action, housing, budgets, etc.

What is the practice and experience of health officers in building up and maintaining competent and smoothly functioning health machinery? In order to obtain information on this point, a questionnaire was sent last summer (1929) to health officers of various cities having a population of 200,000 or more. To get as comprehensive a picture as possible, the cities were selected so that every section of the country would be represented.*

The 8-hour day seems to be favored for health department service: 11 out of the 22 cities require that number of hours, 7 only 7 hours, and 2 require 7½ and 8½ hours respectively. Medical service is essentially on a part-time basis, 18 cities reporting it on that basis.

The question dealing with the procedure to determine the qualification and fitness of the applicant for service was answered by 18 of the cities as follows: in 6 the health officer decides; in 1 the health officer passes on physicians and nurses only and the civil service board on all others; in the majority, 10, the matter is handled by civil service; and in 1 city the health officer "suggests qualifications to the civil service board."

The matter of physical fitness of the applicant appears still very unsatisfactory, and this is rather disappointing in view of the fact that health departments are preaching periodic health examinations as an important factor toward health and efficiency. Of the 19 cities which replied to the question, 12 required no such examination; 5 required it, and 2 required examinations for nurses only. In 3 cities the physical examinations are undertaken by the civil service board; in 2 by

* Answers were received from 22 cities: Atlanta, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, Denver, Detroit, Kansas City, Los Angeles, Louisville, Nashville, New Haven, Newark, New York, Milwaukee, Minneapolis, Portland, St. Louis, San Antonio, San Francisco and Seattle.

the health department, and in 1 of these at the request of the civil service board. In 1 other the health officer is the examining physician.

The question obviously arises—Should not health departments practice what they preach? Should they not prevail upon civil service to make physical competence a fundamental requirement and so protect the public service, and also help the individual to learn of physical handicaps and assist in their correction? Manifestly an examination cannot fully determine the applicant's fitness for service. Time alone will tell.

Twenty-one replies were received to the question—Is there a probationary period, and if so, how long? One city allows a 30-day period; another 2 months; 5 place the period at 3 months. Six months is the time fixed for nurses only in 1 city. Eight others require a 6-month probationary period for all health department employees, and 5 require no probation.

The question as to disciplinary control was answered by 19 of the 22 departments replying. Seven stated that suspension from service was discretionary with the health officer; 3 that it may be undertaken through civil service only. In 1 this authority is entirely in the hands of a board of public safety, while in 3, such disciplinary measures are frankly political, since in 1 this action rests with the mayor and in 2 the city council handles the matter.

Unless suspension carries with it monetary loss, or repetition automatically leads to discharge, it is a meaningless procedure and equivalent to a vacation with pay. In 1 city suspension for 90 days without pay is permissible, in 4 others it is practiced for a period not to exceed 30 days.

Practice with regard to complete and permanent separation from service brought answers from 12 departments. Six stated that action for discharge from service was effected through civil service; 2 did so through the board of public welfare or public safety, of which the health department is a part; in 3 this authority is in the hands of the health officer; and in 1 it rests with the mayor. Appeal from a discharge action was reported in 6 cities through civil service; 1 dealt with it through the mayor; and 1 through common council. One health officer reports that appeal is provided for veterans only.

While management unquestionably succeeds best when it secures the whole hearted and good will coöperation of employees, manifestly insubordination, laziness, disinterest and inefficiency cannot be tolerated. The authority of the department and bureau chiefs must be respected. If minor infractions of discipline cannot be adjusted by

the bureau chief, the department should have authority to suspend without pay for a limited period of time. Repetition of the offense should lead to dismissal through the civil service.

The question of vacation is important, since it involves curtailment in service. Obviously the time for vacations should be so adjusted that the service will suffer least. All but one of the 22 cities replying stated that the authority to fix the time for vacations rests with the health officer. The length of vacation varies from 12 days for clerks and inspectors to 24 for the technical and professional groups. Twelve answers stated that holidays are included in the time allowed; and 10 that they are not.

The practice of granting vacation to employees who have been in service for less than 1 year varies considerably. In 8 cities no vacation is granted to such employees; 2 grant them but do not give the detail of practice. In 1 the health officer decides; in others an allowance of from 1 to 2 days per month of service is made.

Sick leave with pay is not granted in 2 of the 22 cities; 1 allows 30 days; 1, 29 days; 2 others, 10 and 15 respectively; 4, 14 days; 2 state it as "two weeks"; one, "1 week per year of service"; 3 say "conditional," without stating what these conditions are. One allows 75 per cent of the salary for 12 days and 50 per cent for 24 days; another leaves the matter to the discretion of the health officer.

In 14 of the cities, employees are eligible to compensation insurance if injured in line of duty; 7 have no such provision; and 1 did not answer.

Old age retirement is provided for by 11 cities only. The age limit varies from 60 to 70 years, with qualifications in some. Three permit retirement after 25 years of service, while only 4 stated that a pension was given.

The matter of adequate compensation is always an important one, since it is the means of securing and holding competent service. Shall the health officer have a voice in determining what the compensation in his department shall be? Answers were received from 19 health officers. It appears that in the majority of instances the health officer is consulted about the salaries. In 8 cities this matter is in the hands of the health officer, but no details were given. In 7 departments out of 20, salaries are on a graded scale. In 1 city only the salaries paid to nurses and inspectors are graded. The practice in the remaining 12 leaves the matter of increase to the mayor, the council or special boards, and 1 to "pull."

Manifestly the various points mentioned so far by no means represent the sum total of administrative problems, even in so far only as

these have to do with the internal affairs of the department. Organization, housing, budgets, service routine—especially as this has to do with requisitions for supplies and equipment—staff conferences, etc., are all important matters. Then, as already mentioned, there are the special problems that have to do with the department's relationship to government, to volunteer health agencies, the medical profession, and the public in general.

What has been presented must make it clear that there exists considerable diversity of practice and that there is quite definitely room for improvement.

No attempt has been made here to lay down categorically rules for administrative procedure. There is no doubt, however, that further study of administration methods now in practice will prove useful for the improvement of departmental efficiency, and helpful to the administrator in discharge of his duties.

Public health administration is a specialty which, if it is to take and maintain its position along with other public services, must adopt modern methods of business.

The Teaching of Bacteriology and Public Health to Hospital Nurses

HOSPITAL nurses should come to graduation with a practical knowledge of bacteriology, epidemiology and public health. Too often their instructors are technicians or members of the hospital staff years removed from the subject, or staff nurses selected because of their inadaptability for other duties. It is perfectly true that prescribed courses are mentioned in the curriculum for hospital nurses but it is not infrequent that the course in bacteriology, at least, is given without the student obtaining actual laboratory experience.

It is likewise true that hospital nurses are not intended to be bacteriologists but their varied duties are such that sterile technic at the bedside and in the operating room is dependent upon existing bacteriologic flora and a workable knowledge of the reasons for possible contamination and the contaminants is necessary. Just as necessary are the fundamentals of the epidemiology and public health measures to be used to combat disease.

The nurse is quite frequently the confidante and companion of the patient and the understanding of questions with their proper answers is equally as important as is sympathy and bedside care. Superintendents of hospitals should carefully scrutinize such instruction in order that the graduate nurse will have some adequate familiarity with laboratory technic and public health procedures.—J. C. Geiger, University of California.

Report of Visits to Local Registrars of Vital Statistics in Maryland*

JOHN COLLINSON, M. D., DR. P. H., F. A. P. H. A.

Chief, Bureau of Vital Statistics, State Department of Health, Baltimore, Md.

THE system of registration of births and deaths operating in Maryland is that recommended by the U. S. Bureau of the Census. This was adopted in 1912, and is as follows:

The 23 counties of the state, having a population of 800,000 and an area of 9,933 square miles, are divided into 201 registration districts with a local and deputy local registrar in each. These are held responsible for the complete and accurate registration of births and deaths in their respective districts. Their detailed duties are to receive original birth and death certificates, issue burial and transportation permits, keep records of all certificates received and permits issued, and to acknowledge receipt of birth certificates on post cards supplied. Before the 5th of each month the local registrars forward to the state registrar all original certificates of birth and death which they and their deputies have received during the previous month. For these services the county pays the registrar 35 cents for each original certificate recorded. Applicants pay 25 cents each for burial permits issued upon transit permits, and for disinterment permits issued to them.

The City of Baltimore, which includes approximately half the population of Maryland, comprises one registration district. The registration and preservation of certificates in this district are under the direction of the Health Commissioner of the city. This discussion, therefore, does not include Baltimore.

For the purpose of becoming personally acquainted with the registrars and their work, and of arousing their interest in the activities of the Bureau of Vital Statistics, 121 local registrars, whose districts are scattered generally over the state, were visited during the period April 1 to September 15, of this year. Each was closely and systematically questioned and notes were made regarding

*Read before the Vital Statistics Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 3, 1929.

1. His profession
2. His familiarity with the duties of his position
3. Whether the necessary office records were being kept
4. The difficulties experienced in obtaining complete reports from physicians, midwives, undertakers, and sextons respectively
5. Checks used to determine the completeness of registration in his district

The summary of findings is as follows:

1. Those who have some clerical work as their regular duty, such as bank clerks, postmasters, and store keepers, make the best registrars. Farmers, physicians, and undertakers are, as a rule, undesirable. An old resident, familiar with the district and its people, is usually preferred to one who has recently settled in the community.

2. Registrars were found to have a working knowledge of the law pertaining to their duties, except that section concerning the issuing of burial permits on presentation of the transit permits which usually accompany bodies brought into Maryland.

3. Office records of birth and death certificates received and of burial permits issued were found to be complete and neatly recorded.

4. In the opinion of registrars, physicians are more negligent in reporting births than licensed midwives. Unlicensed midwives frequently do not report in order to escape prosecution for practicing. It was stated that some undertakers obtain burial permits from the most conveniently located registrars, instead of from the registrar of the district in which the death occurred. The Maryland law states that sextons shall return all burial permits to the local registrar of the district in which the burial takes place. This is not strictly complied with.

5. Probably the most important part of the inquiry was that dealing with the checks used by registrars and efforts made to insure complete registration of births, deaths and burials.

Registrars of small rural communities stated with assurance that they hear through neighborhood gossip of all births which occur in their districts. Registrars of towns of 5,000 and over do not hear of all births and know of no practical way of determining the completeness of registration. Settlements of negroes and communities of foreigners add to the difficulties of local registrars, as in these groups a member of the family who does not know the importance of reporting frequently officiates at the birth.

A few registrars telephone physicians each month, asking that all births attended be reported. Some periodically make the same inquiry of midwives, but these are the exception. All report violations or suspected violations of the law to the State Registrar, if they are known to have occurred and cannot be corrected locally.

The occurrence of a death even in a large community is heard of by the registrar, and the penalty for not properly recording it is generally understood.

The law requiring the return of burial permits to local registrars

does not operate as a satisfactory check on interments, as frequently sextons neglect this duty, and many farms have private cemeteries with no person in active charge.

In conclusion, as recent visits to local registrars have promoted better coöperation and understanding, it is believed that the central office and local health officers should always keep in close touch with representatives in the districts by frequent visits and correspondence.

The present system of the collection of vital statistics in Maryland is operating satisfactorily. It is inferred from reports that death certificates are received and burial permits issued for more than 99 per cent of the deaths which occur, stillbirths excepted.

Taking the state as a whole, Baltimore City excluded, the registration of births was 96.1 per cent complete in 1928, as judged by checking certificates of deaths of infants who died under 1 year against birth certificates to determine if the birth had been reported. There are districts, however, in which there is more than a suspicion that birth reporting is deficient. The evidence collected would indicate that local registrars can do little more to remedy the matter than they are now doing. They consider their position an honor, the duties of their office a serious responsibility, and demand compliance with the law. Success in obtaining complete registration of births and deaths, therefore, as in other fields of public health, must depend on our ability to convince the public of its necessity and value.

DISCUSSION

W. THURBER FALES, F. A. P. H. A.

State Registrar, Bureau of Vital Statistics, State Board of Health, Montgomery, Ala.

THE conditions in Maryland are very similar to those in Alabama. There are, of course, differences as to details, but the problems for the most part are the same.

During the past three summers Alabama has had three or four students, usually medical, doing field work in vital statistics. They have visited registrars, undertakers, coffin dealers and doctors. The following facts were found, and comparison with the findings of Dr. Collinson is interesting:

1. Of the 159 registrars visited this summer, 61 per cent were men and 39 per cent women—33 per cent were farmers, 28 per cent housewives and 39 per cent had other occupations. We have also found that clerical workers make perhaps the best registrars and for this reason have linked up registration with justices of the peace in the various sub-divisions of the county with good results.

2. This is the first definite field work among registrars carried out, and we

found that many registrars as well as undertakers and coffin dealers sadly needed the instruction made possible by these field visits.

3. We found that the registrars were keeping very accurate and complete records of the births and deaths passing through their hands, 95 per cent of them keeping them as required by law. The question of returning the burial permit to the local registrar has been a difficult one in Alabama. The sextons, with the exception of those in cemeteries located in the towns—and not even in all of these—do not carry out this part of the law. As a result our circuit is not entirely closed and I regret to say that for probably not more than 75 per cent of all deaths in the state are burial permits actually secured before burial.

TABULATION OF VISITS TO ALABAMA REGISTRARS BY FIELD MEN

No. Registrars visited	159
No. Counties included in these visits	14
Average no. days spent in these counties *	10
Time of visits	June 1 to Sept. 15, 1929

	No.	Per cent
Men registrars	97	61
Women registrars	62	39
Registrars who are farmers	53	33
Registrars who are housewives	45	28
Those of other occupations	61	39
Registrars having deputies	83	52
Registrars with registry of midwives	91	57
Registrars keeping record of births and deaths	152	95
Registrars issuing permits before burial	75	45
Registrars sending in properly filled out certificates	122	76
Registrars sending in confidential reports	62	39
Registrars having more than one beat	26	16

* Includes time spent in visits to all coffin dealers, undertakers and doctors in counties.

Infant Mortality in Latin America

IN the registration area of the United States, the infant mortality rate was 65 in 1927 whereas in the countries of Latin America the lowest rate is about 110; between 110 and 115 in Uruguay and between 110 and 112 in Argentina. In other parts of Latin America it is much higher. For instance, in Brazil, where infant mortality figures are available for some cities, only 2 in the last few years showed an infant mortality rate of 150 to 170; and in Porto Alegre the rate was 292 in 1925.

The medical and social causes of infant mortality are discussed, and the need of a central government agency for maternity and child welfare is emphasized. References are frequently made to conditions in the United States.—La Mortalidad Infantil en Algunos Países de la América del Sur, by Dr. Gregoric Aráoz Alfaro, honorary professor of medicine at the University of Buenos Aires and former president of the National Department of Health of Argentina, *Boletin de la Unión Panamericana*, Washington, May, 1930, pp. 505–523.

Elusive Features in the Epidemiology of the Common Cold *

WADE H. FROST, M. D., F. A. P. H. A.

School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

THE common cold is of such frequent occurrence that our opportunities for observing it would seem to be unlimited; yet we have accumulated exceedingly little exact knowledge and less understanding of its epidemiology. We know, in a general way, that it is of world-wide and common occurrence; but we have very scant records of its actual prevalence and distribution in the different elements of any population, still less of its relative prevalence in different parts of the world and in different periods of time.

As to etiology, it is generally believed that the malady is an infection, directly transmissible from person to person, and that certain special circumstances, such as chilling and fatigue, are contributory factors of some importance. These beliefs, however, are based largely upon impressions or so-called common knowledge; they are held somewhat tentatively; and are rather vaguely defined with respect to the nature of the infection—whether it be specific or heterogeneous, primary or secondary—and in the relative importance attached to supposed contributory causes.

In explanation of this backward state of knowledge, there are several features of the common cold which tend to make the collection and interpretation of significant epidemiological data unusually difficult. In the first place, the disease is of such trivial character that, until recent years, it has attracted little serious study except from the angle of bacteriology. Also, because of this triviality, exact records of its prevalence, distribution and clinical course are not obtainable except by elaborate arrangements for special observation of selected groups. Again, the high prevalence of the disease, together with the fact that it causes such slight disability, makes it exceedingly difficult to obtain reliable accounts of the contact relations between cases and even more difficult to interpret such records after they have been collected.

* Read at a Joint Session of the Laboratory and Epidemiology Sections of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 4, 1929.

Then too, the fact that colds usually recur in the same person at intervals of a few months necessitates keeping the same individuals under continuous observation for rather long periods; and moreover, whatever interpretation be placed upon this tendency to recurrence, it implies complexities of epidemiology. However, the most baffling features of the disease are (1) that it lacks sharp clinical definition, and (2) that experimental research has yielded only indecisive results.

Referring first to bacteriological and other experimental investigations, they have been so extensive and varied that many different shadings of interpretation may be given to the findings. It is, however, a reasonably fair summary to say that the results to date leave it in doubt whether the pathological reaction which we call a cold is caused by (1) a specific infection, the same in all cases; (2) infection by any one of various organisms; or (3) some non-infectious process which opens the way for bacterial invasion as a secondary phenomenon. If any more definite general result may be claimed, it is, perhaps, that the trend of recent work has been to strengthen the evidence in favor of infection as the primary process; to indicate that none of the easily cultivated organisms commonly found in the respiratory passages bears a specific relation to the disease; and to point toward a filter-passing organism or group of organisms as the primary and essential cause. These, however, are only suggestive indications, not established conclusions.

The lack of positive aid from the bacteriological laboratory constitutes by itself a sufficiently serious difficulty in the epidemiological study of any supposedly infectious disease; but in the problem of the common cold this deficiency is associated with a lack of clinical definition. The fundamental importance of this is indicated by recalling the general process whereby proof of specific etiology is established.

In the usual order of procedure, the first stage in such proof is recognition of a distinctive clinical-pathological process which serves to identify individual cases with each other and to differentiate them from other diseases. It is the distinctiveness of this reaction which establishes the presumption that the cases manifesting it are due to a common cause which is different from that operative in cases where this clinical reaction is not found; and this presumption of specific (not necessarily infectious) causation is of fundamental importance to further investigation, forming a definite foundation upon which to assemble facts pertaining to the nature of the cause. Moreover, the character of the clinical reaction frequently suggests, by analogy with other diseases, that it either is or is not due to a specific microörganism.

In seeking to test the hypothesis of a specific cause and to learn

something of its nature and the mechanism of its action, we proceed by either or both of two methods: (1) by observation and analysis of special circumstances associated with the natural occurrence of the disease; or (2) by experimental methods, including in this category bacteriological and immunological procedures.

These several stages of proof may proceed coincidentally, or their order may be reversed, so that clinical differentiation may be derived originally from bacteriological observation, as in the distinction between typhoid and paratyphoid fever. But regardless of the sequence, the significance of both epidemiological and experimental evidence, as indicating a specific etiology for the disease in question, depends upon the distinctiveness of the pathological process which constitutes the disease. Obviously it is essential to the proof of specific etiology that the effect as well as the cause be specific.

As regards the common cold, what seems to be the most fundamental difficulty is that we have been unable to identify a clinical-pathological process which is sufficiently distinctive to be confidently accepted as specific. This affects both experimental and epidemiological studies. For example, various observers have succeeded in reproducing, under experimental conditions, reactions which more or less resembled the common cold or influenza, but the experiments have been indecisive because of uncertainty as to whether the experimental disease actually was identical with that occurring naturally in man. For epidemiological investigation a primary requirement is to mark off for study a clinical unit so distinctive as to justify the presumption that it coincides with an etiological unit.

In attempting to locate such a unit, we may begin by excluding from consideration diseases such as measles and the pollen fevers which exhibit symptoms more or less resembling those of the common cold but with other characteristics which readily differentiate them. This leaves in the field a rather large family of what we may call the minor respiratory diseases, all characterized by acute catarrhal inflammation of some portion of the respiratory tract, and a constitutional reaction of moderate severity, manifested by such symptoms as general malaise, headache, aching in the body and limbs, and perhaps fever. In addition to what usually would be called "colds," this family includes cases which, by present usage, are variously designated as influenza, grippe, acute bronchitis, tracheitis, laryngitis, and pharyngitis, respectively, or by some combinations or equivalents of these terms. Granting that these designations correspond to clinical pictures which actually are in some degree different, the question is whether this or any other classification divides the family into groups

of cases which are clinically so distinct as to justify the presumption that the cases within each group are due to one common cause, which is different from the cause of each other group.

Townsend and Sydenstricker[1] have investigated this question by statistical analysis of the clinical records of all the cases of minor respiratory disorders reported during two years in a large group of families, the records being furnished by observers, most of whom were physicians. Assembling the reported cases into four main diagnostic groups, viz.: colds, bronchitis, sore throat, and influenza, they found that these groups differed from each other only in the relative frequency and prominence of symptoms which were more or less common to all, so that the groups overlapped. Moreover, they found that in reporting cases the observers frequently used combinations of the four principal diagnoses, so that altogether more than a dozen diagnostic classes were represented. Interposing the various combinations between the main groups the result is a graded series of variation in clinical types, so that no group differs from its nearest neighbor sufficiently to justify a strong presumption of specifically different causation.

In a smaller but somewhat more intensive study which is now in progress in Baltimore we have observed all the cases of minor respiratory disorders occurring in a group of families in the course of a year. Within the whole series the range of variation in symptoms noted is very wide, extending from acutely febrile cases, conforming to the classical descriptions of epidemic influenza, to simple coryza or tracheitis, with little or no constitutional disturbance. If these extreme types were taken by themselves, they would seem to differ widely enough to justify the inference that they were due to quite different causes; but when the whole series is classified we find, as did Townsend and Sydenstricker, that the extremes are connected by a gradation of intermediate types, so that one does not know where to draw lines of demarcation.

The conclusion drawn from these two studies, namely, that the different clinical types of minor respiratory disorders merge into each other by graded variations, is not at all inconsistent with the fact that separate types are generally recognized in medical literature, for careful reading of the type-descriptions as given by representative writers shows that where lines of differentiation are drawn they are either arbitrary or quite indefinite.

I think then, that if we take into account only *clinical* evidence, it is an open question whether the whole family of these minor respiratory diseases should be considered as varying manifestations of a

single specific cause or as including an indefinite number of separate etiological groups. It is not necessary here to present any argument on either side of the question, or to discuss the prospect that more definitive clinical evidence may be discovered. The point is simply that the clinical evidence now available, taken by itself, does not justify any strong presumption either that the whole family is, or that it is not, a single etiological unit.*

Since neither clinical nor bacteriological observation has enabled us to mark off a definite group of cases which we may assume coincides with an etiological unit, we are in a dilemma with respect to epidemiological studies. If we begin by setting up a restricted clinical definition of the common cold, and confine epidemiological observations to cases coming within this definition, we may be making the same mistake that our forefathers made when they failed to identify membranous croup with other forms of diphtheria, and therefore run the risk of missing important epidemiological associations. On the other hand, if we include the whole family of minor respiratory diseases in one category, we may be obscuring, in the composite, distinctive epidemiological characteristics of its separate components, as would be the case if all the acute exanthemata were thrown into one undifferentiated group, so that facts concerning smallpox were confused with those pertaining to measles and scarlet fever.

The only way out of the difficulty seems to be to include the whole group of minor respiratory diseases in epidemiological studies, but with such detailed clinical and bacteriological records of individual cases as will permit any desired clinical groupings; then to ascertain whether any tentative groupings on a clinical or bacteriological basis correspond to significant epidemiological differences. This procedure has the merit that it involves no assumption as to the unity or diversity of causation for the group as a whole and that it affords the possibility of testing the significance of indistinct clinical differences by matching them against corresponding differences in epidemiological characteristics. However, the method is extremely laborious to carry out, even on a small scale, and obviously small scale studies do not suffice. Comparisons with respect to such features as rate and extent of geographic distribution require observations of the broadest scope.

The principle of seeking by epidemiological characteristics to supplement indistinct clinical differentiation of diseases is, of course, not new. It has been applied for many years in the study of epidemic

* It may be added that this is the usual view, for while many students of the subject, perhaps most of them, consider epidemic influenza a specific disease, distinct from endemic grippe and severe colds, they usually admit, more or less explicitly, that the differentiation is based partly upon epidemiological considerations. It may also be added that for the present bacteriological examination affords no significant basis for differentiation.

influenza, and less extensively in studies of the common cold. For instance, Townsend and Sydenstricker, in the study previously referred to, present statistical analyses of the seasonal and age distribution of cases classified clinically as colds, bronchitis, sore throat, and influenza, respectively, which show that as regards these epidemiological features the several groups differ from each other. To cite only one example, the age distribution of influenza differs from that of colds in their series; but granting that the differences are significant in a statistical sense, the question arises whether they are sufficient to indicate different specific causes.

A possible interpretation is that the age of the individual affected may be a factor in influencing the type of reaction to the same specific cause, as is true in diphtheria, where we find quite different age distributions for the laryngeal and pharyngeal forms of this disease. Likewise, such epidemiological differences as Jordan and others[2] have demonstrated between pandemic and inter-pandemic influenza present similar difficulties of interpretation; and it may be said generally of studies made upon this principle that the difficulties encountered in interpreting their data are even greater than those of collecting them.

CONCLUSION

In conclusion, it appears that the central problem involved in the epidemiology of the common cold is that of its relation to epidemic influenza and other members of the general family of minor respiratory diseases. Two of the approaches to this problem are at present being vigorously attacked by bacteriological and epidemiological studies, respectively; but the more direct approach, by way of clinical and pathological research, has received far less attention.

Considering that the problem is primarily one of identifying a pathological process, and that such identification appears to be fundamental to either bacteriological or epidemiological proof, the most urgent present need in the investigation of the common cold seems to be for more intensive clinical study of the whole group in which it falls.

REFERENCES

1. Townsend, J. G., and Sydenstricker, E. Epidemiological Studies of Minor Respiratory Diseases. *Pub. Health Rep.*, Jan. 14, 1927.
2. Jordan, E. O. The Epidemic of Influenza of 1918. *J. A. M. A.*, Nov. 5, 1927, pp. 1603–1606.

Hospital Facilities for the Treatment of Cancer

SUSAN M. WOOD

Executive Secretary, New York City Cancer Committee, American Society for the Control of Cancer, New York, N. Y.

THE New York City Committee of the American Society for the Control of Cancer, with the approval and coöperation of the Commissioner of Health and the Commissioner of Hospitals, in 1929 made a preliminary survey of the field to ascertain what hospital facilities are available in the Metropolitan area for the treatment of cancer. The results were valuable chiefly because of the details obtained for the use of the Information Bureau of the committee. This bureau receives a large number of inquiries from persons who have cancer and are in need of hospital care, either free or paid, or who fear that they may have the disease and wish to be examined and if necessary properly treated. It is the custom of the bureau first to find out if the applicant has a physician to whom recourse should be had, and if not, to recommend one or two of the hospitals and clinics on its lists.

The need for hospital facilities for the treatment of cancer is shown by the following: The population of the City of New York during 1929 was estimated at 6,064,484. The total number of deaths in the city during the year was 77,482, of which 7,848, more than 10 per cent, were reported as due to cancer.

Totals by boroughs are given in Table I. These figures cover only the deaths certified as due to cancer. As cases of the disease are not reported to the Health Department, there are at present no means of estimating how many persons suffer from it, nor what ratio there is between the number of deaths and the total number of cases. It is, however, admitted that the average case of the disease runs a course of 3 years, which would mean that last year there were 23,544 persons in New York alone in need of treatment. But this again does not include those successfully treated by surgery or by radiation. Every physician knows that there are such patients, and that with better public understanding of the subject and of the good results obtained

TABLE I

TOTALS BY BOROUGHS

	Estimated Population	Total Deaths	Deaths from Cancer
All boroughs	6,064,484	77,482	7,848
Manhattan	1,689,419	28,033	2,662
Bronx	977,819	10,952	1,254
Brooklyn	2,342,781	26,690	2,705
Queens	899,791	9,816	1,040
Richmond	154,674	1,991	187

by early treatment, the number is constantly increasing. Two things are essential: the providing of adequate facilities for the treatment of the disease; and bringing the sufferer to the hospital or clinic when the disease is still in an early stage and the chances for cure are more favorable. The latter is the particular function of the American Society for the Control of Cancer. The most skilful surgeon and the best equipped radiotherapeutist are alike helpless to control the disease unless patients reach them in an operable condition or at a stage when radiation is effective.

In order to secure the desired information, a questionnaire was prepared and sent to all hospitals in the area then under the jurisdiction of the committee, comprising the five boroughs and the counties of Nassau, Suffolk, and Westchester. One of the chief facts brought out by the questionnaire was the difficulty of obtaining accurate statistics on cancer treatment. In the majority of institutions cases of cancer are received in the general surgical wards, and no separate records of cases either in the hospital or after discharge are kept.

In a report issued recently by the Welfare Council, *A Health Survey of New York City*, the authors state:

> The bed capacity specially assigned to cancer patients in New York City is approximately 838 beds, 460 in special cancer hospitals, 289 in homes for incurable cancer patients, and 89 estimated to be used for cancer cases in institutions for the chronic sick that receive cancer patients. Of these 838 cancer beds, 264 are in municipal and 574 in voluntary institutions. In addition many cancer patients occupy beds in general hospitals, but the number cannot be computed. In 1927, Mount Sinai Hospital with a total of 13,000 admissions had 675 cancer cases, that is, about 5 per cent of all admissions.
>
> The number of cancer patients at one time in most of the institutions of New York City that receive cancer cases will be shown by the census of the chronic sick, which has been taken as part of the study of chronic illness now being made by the Research Bureau of the Welfare Council.
>
> Memorial Hospital, in 1926, received 2,390 applications for admission, 542 of which were declined as unsuitable. The actual number of admissions was 2,032, of which 495 were free ward cases, 1,000 paid ward rates, and 537 private room cases.

Five cancer institutions—Memorial Hospital, the New York City Cancer Institute, Brooklyn Cancer Institute, House of Calvary, and St. Rose's Free Home—in 1927 received a total of 3,975 patients. The number of cancer cases among the 1,095 admissions of the Skin and Cancer Hospital is not known, nor the proportion of cancer cases among the patients of other institutions for chronic diseases.

Replies to the committee's questionnaire were returned by 93 hospitals which receive cancer patients. Of these, 4 received only patients in the late stages, when no cure is to be hoped for, and the need is for frequent surgical dressings and a comfortable place to die. These were St. Rose's Free Home (89 beds) and the House of Calvary (100 beds), in Manhattan and the Bronx; the Home for Dependents, a municipal institution, in Richmond; and Rosary Hill Home (100 beds) in Westchester.

St. Rose's Free Home and Rosary Hill Home are maintained by the Servants of Relief solely for the care of the poor and hopeless cancer patients. This care is entirely free. The House of Calvary is also maintained as a free home for incurable cases.

Of the 89 other hospitals, all received cancer patients in the early stages requiring operation; 73 received patients in the later stages for surgical treatment; 47 received patients for treatment by radiation with either X-ray or radium; and 6, in addition to those already listed, regularly cared for patients in the last stages. These last are the New York City Cancer Institute (Welfare Island) and Montefiore Hospital, in Manhattan and the Bronx; Cumberland and Kings County Hospitals, in Brooklyn; and Ossining and St. John's Riverside Hospitals in Westchester. The New York Skin and Cancer Hospital cared for any patients in late stages of the disease who had been formerly treated at the institution; and St. John's Hospital, Brooklyn, contemplated the establishment of a special department for inoperable cancer patients. In many of the general hospitals, patients in a hopeless state were received and cared for pending their removal, when possible, to one of the above institutions or to one of the homes receiving only the incurables; in some cases, when beds were available, such patients were held until death.

Thirteen received only those in the early stages for operation.

At all of these hospitals, cancer patients were admitted in the regular surgical services, and no special assignment of beds was made, so that the total number available is indeterminate. The majority of the hospitals reported that from 1 to 5 per cent of their bed capacity was occupied by cancer patients. The Jewish Memorial Hospital in the Bronx reported 10 per cent of cancer patients.

During 1929 there were in New York 6 hospitals devoted to or with special services for the treatment of cancer in any and all stages. See Table II.

Cancer patients applying at the general hospitals in any of the boroughs and found to be unsuitable for treatment were usually referred to one or the other of these institutions. In none of the other boroughs or counties of the district were any provisions made for the treatment of cancer patients in advanced stages.

TABLE II

HOSPITALS DEVOTED TO OR WITH SPECIAL SERVICES FOR CANCER

Memorial	104 beds
Montefiore	40 "
New York City Cancer Institute	
(59th Street)	16 "
(Welfare Island)	192 "
New York Skin and Cancer	60 "
Cumberland *	Indefinite No.
Kings County	" "

* Since this information was gathered, the Cancer Division of Cumberland Hospital has been abandoned, and the patients removed temporarily to other hospitals, pending the erection of a modern building.

Thirty-eight of the hospitals were equipped to give treatment with X-ray; 45 reported that they were equipped to give radium treatment. In some of these the radium used was the property of the hospital, but in the majority of cases it was privately owned, usually by members of the attending staff. Some of the hospitals used only radium emanation which was purchased as needed.

The largest stock of radium was owned by the Memorial Hospital which had 4 gm. belonging to the hospital and 4 in the ownership of special trustees. One-half of this amount was kept in solution and only the emanation was used; the other half was used in element pack.

The New York City Cancer Institute had the use of 2 gm. of radium owned by the Department of Hospitals, and had an emanation plant on Welfare Island, with a yield of about 700 M.C. daily. This emanation was supplied in seeds and applicators to other city hospitals when needed. The element itself was not used in treatment.

Bellevue Hospital had the use of 1 gm., also owned by the Department of Hospitals. Here the element was used.

Beth Israel Hospital owned 236 mg. of radium, and expected to purchase an additional gram and install an emanation apparatus.

The Manhattan Eye, Ear, and Throat Hospital had the use of 206.128 mg., one-half of which was owned by the hospital, while the other half was private property. Other hospitals having radium are shown in Table III.

In many hospitals radium emanation was used in suitable cases, the chief sources of supply being the Memorial Hospital and the New York City Cancer Institute.

Thirty-one hospitals stated that radiation alone was sometimes used in operable cases, depending on the region involved and the type of growth, and occasionally also on the patient's own preference; 27 stated positively that no operable cases were treated by radiation only.

There appeared to be very little specialization among the surgeons treating cancer, except in the special hospitals, such as the Manhattan Eye, Ear, and Throat, the Memorial, the New York Skin and Cancer, and the Sloane Hospital for Women.

No special effort was made to secure autopsies on cancer patients in the general hospitals; they were performed when permission was obtained. But as a matter of fact, the cancer mortality in the general hospitals is small, as comparatively few patients are held until death. No definite figures were available.

Out-patient departments equipped to make diagnoses in cases of cancer were reported in 70 hospitals, the charge for the examinations being the usual clinic fee only, that is, ranging from nothing to $5.00, with an average of $.25 to $.50.

Patients applying at the clinic and found to have cancer or suspected of having cancer were usually sent into the hospital for treatment or observation, though in some cases they were referred directly to the special cancer hospitals.

Laboratories properly equipped for the examination of tissues for diagnosis were maintained by 78 hospitals, and in every case but 2 were in charge of a physician. The exceptions were the Midtown Hospital and St. Mary's Free Hospital for Children. The latter has no adult patients; and on occasions when diagnosis was necessary material for examination was sent to the New York Hospital.

All but 7 of the hospitals with laboratories were equipped for the making of frozen sections for immediate diagnosis during an operation.

TABLE III

MANHATTAN AND THE BRONX

	mg.
Montefiore Hospital	500
Mount Sinai Hospital	260
New York Skin and Cancer Hospital	160
Presbyterian Hospital	200
Sloane Hospital for Women	200
Woman's Hospital	280
BROOKLYN	
Methodist Hospital	200
St. Mary's Hospital	100

Eight hospitals were without laboratory facilities; in one of these, however, a laboratory was under construction at the time the report was made. These hospitals send tissue for diagnosis either to the State Institute in Buffalo, to Bellevue Hospital, or to private laboratories in New York.

The system of following-up treated and untreated cases of cancer varied widely. In the general hospitals this usually was done as a part of the routine follow-up of all cases by the office, the out-patient department, or the social service workers.

The Presbyterian Hospital reported that it considered its follow-up clinic the best in the country, both treated and untreated patients being included. The cases were followed every 3 months, and the reports kept in a special section of the record room.

The Memorial Hospital reported that all cases were followed, the interval time being decided by the attending physician; in some cases patients were urged to report for examination as often as every 2 weeks.

Twenty-seven hospitals do not have a follow-up of either treated or untreated patients, though in almost all institutions the patient on discharge is urged to report for examination once a year, or oftener, to the hospital or to his own physician.

In some hospitals the follow-up was left entirely to the different services, each service being supposed to sustain its own.

In almost all cases where any regular follow-up was carried on by the hospital the returns were kept in the regular files, not as separate records.

Fifty-three hospitals reported that attempts were made to discover and treat precancerous symptoms—patients showing such lesions being kept under observation. Twenty-one hospitals reported definitely that no such attempts were made.

These figures indicate the inadequacy of provisions in the Metropolitan area for the hospitalization of patients suffering from malignant disease. Since then the City Department of Hospitals has begun the formulation of plans which will greatly increase the facilities and usefulness of its Division of Cancer.

The need for more adequate care for all other classes of cancer patients still exists, and calls for the development of special cancer hospitals, of cancer institutes connected with teaching institutions, and of special cancer services in general hospitals. With this increase in clinical facilities should go an increase in the facilities of the laboratory, as well as of the social service departments in charge of the follow-up work.

Training and Personnel*

THE following tables similar to those published in previous years present the data concerning students registered in schools of public health, and the public health degrees granted in the calendar year 1929.

TABLE I

NUMBER OF STUDENTS ENROLLED AND PUBLIC HEALTH DEGREES CONFERRED IN 1929 IN COURSES REQUIRING AT LEAST ONE YEAR OF RESIDENCE AND LEADING TO A PUBLIC HEALTH DEGREE

School	Degrees	No. Enrolled 1928–1929	No. of Degrees Granted 1929
1. University of California	B.A.	15	6
	M.A.	1	1
2. University of Chicago **			
3. Columbia University	M.S.	1	0
4. Detroit College Medicine and Surgery	Dr.P.H.	0	0
5. University of Georgia †			
6. Harvard School of Public Health	Dr.P.H.	2	2
	M.P.H. ‡	1	1
7. Johns Hopkins School of Hygiene	Dr.P.H.	7	7
	Sc.D.	41	7
	C.P.H.	24	20
8. Massachusetts Institute of Technology	S.B.	58	7
	C.P.H.	15	1
	Ph.D.	10	4
	Dr.P.H.	2	0
9. McGill University	D.P.H.	2	2
10. University of Michigan	M.S.		4
	Dr.P.H.	16	2
11. University of Minnesota	M.A.	1	0
12. University of Montreal	D.P.H.	0	0
13. Ohio State University	M.S.	5	2
14. University of Pennsylvania *	M.S.	12	5
	Ph.D.		2
15. Queen's University	0	0	0
16. University of Toronto	Ph.D.	3	1
	M.A.	2	1
	D.P.H.	11	9
17. University of Western Ontario	D.P.H.	0	0
18. Yale School Medicine	M.S.	8	2
	Ph.D.	10	4
	C.P.H.	7	2
	Dr.P.H.	1	1
	Total	255	93

* It is impossible to separate students taking degrees in public health from those taking biological courses.
† A course leading to a degree in public health is no longer offered.
‡ There were 7 other students doing full-time work but not candidates for any degree.
** The School of Hygiene and Public Health has been discontinued. Provision is now made in the graduate school of medicine for the registration of students applying for this work.

* Report of the Committee of the American Public Health Association presented at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October, 1929.

TABLE II

NUMBER OF DEGREES IN PUBLIC HEALTH GRANTED IN UNITED STATES AND CANADA IN 1929

Degree	Degrees Granted	Number of Schools Offering the Degree
Certificate of Public Health	23	3
Doctor of Public Health	12	6
Doctor of Science in Hygiene	7	1
Doctor of Philosophy	11	4
Bachelor of Science	7	1
Bachelor of Arts	6	1
Master of Science	13	5
Master of Public Health	1	1
Diploma in Public Health	11	4
Master of Arts in Hygiene	2	3
	93	

The committee has collected certain data concerning positions for which various schools of public health were asked to recommend candidates. The information concerning the salary range of these positions was very incomplete. University of California, University of Chicago, Columbia University, Harvard University, University of Michigan, and Yale Medical School, supplied the data presented in the following table.

TABLE III

KINDS OF PEOPLE WANTED

	Number	Salary Range
Teaching Positions		$2,300–$5,000
Physiology	3	
Hygiene and Public Health	5	
Health Education (College)	2	
Health Education (Public Schools)	2	
Home Economics	1	
Bacteriology	2	
Nursing Education	10	
Health Officers, Commissioners or Administrators		$3,500–$6,000
County, City and State	20	
Executive of Community Council	1	
Obstetrician, Bureau of Infant-Maternal and Child Hygiene	1	
Physicians		
School and College	6	$4,000–$8,000
Industrial	3	$19,000 (Only salary given)
Research	2	
Foundation	2	
Nurses		$1,600–$2,500
Supervising	1	
School	2	
Visiting	5	
Public Health	58	

TABLE III (cont.)

	Number	Salary Range
Laboratory Workers		$1,500–$2,500
Bacteriologist	2	
Laboratory Assistants	12	
Technician in Pathology and Histology	1	
Epidemiologists	4	
Statisticians	4	$3,200–$3,700
Miscellaneous		
Director Joint Employment Bureau	1	
Assistant Dairy Technologist	1	$4,000
Editorial Assistant	1	
Asst. Industrial Health Service	1	½ time—$50 to $100 a week
Asst. Industrial Hygiene Bureau	1	$3,000
Tuberculosis Field Worker	1	
Public Health Surveys	1	
Fellowships	2	

Section Representatives

T. G. HULL
W. J. V. DEACON
HENRY F. SMYTH
LILLIAN A. HUDSON
THOMAS F. KENNEY
E. G. ROUTZAHN
ABEL WOLMAN
J. F. SHRADER
WALTER S. CORNELL

Committee

C. E. TURNER, *Chairman*
JOHN SUNDWALL
C.-E. A. WINSLOW
J. G. FITZGERALD
W. S. LEATHERS

Amendment of Child Labor Legislation in Germany

THE temporary regulations governing the employment of young workers in Germany in glass works, in rolling mills, in iron works, and above ground in coal mines, have recently been amended to agree with the provisions included in the labor bill which is now pending in the Reichstag, but which will probably not be enacted for some time.

While previously a child could go to work in these industries at the age of 13 if he had completed the required school course, and in any case at the age of 14, the minimum age for employment in certain processes is now placed at 14, if the child has finished the prescribed school course; otherwise he must wait until he finishes the course. The minimum age for work in certain unhealthful processes is raised from 14 to 15 and in certain others from 16 to 18 years. Further limitations are placed on the number of exceptions to the prohibition of work at night of boys under 16, and provision is made for the gradual abolition of such night work. (The night work of women and girls was prohibited a number of years ago.)—*Reichsarbeitsblatt*, Berlin, No. 10, 1930.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

EDITORIAL COMMITTEE

HENRY F. VAUGHAN, D.P.H., *Chairman*

C. C. YOUNG, D.P.H. — ARTHUR P. MILLER, C.E.

CLARENCE L. SCAMMAN, M.D. — EMERY R. HAYHURST, M.D.

MAZŸCK P. RAVENEL, M.D., *Editor in Chief*

ASSOCIATE EDITORS

LOUIS I. DUBLIN, Ph.D. — IRA V. HISCOCK

EVART G. ROUTZAHN — RAYMOND S. PATTERSON, Ph.D.

WALTER S. FRISBIE — EVA F. MACDOUGALL, R.N.

LEONARD GREENBURG, Ph.D.

MENTAL HYGIENE

IN most of our commonwealths the administration of mental health measures has been conferred on state authorities rather than local. The state has maintained hospitals for the mentally ill, and schools for the defective, and has brought clinics to many communities. It has also assisted in removing the mentally sick from their homes or other places, when private institutions, the police, or the poor authorities have identified the patient and the court has authorized his detention. Only gradually has it been thought that these problems may be problems of public health.

Since most diseases involving the state of mind are not actively communicable, the health officer is not commonly charged with any duties concerning them. Nevertheless, such illnesses if not given prompt and appropriate treatment may be more dangerous to the individual than leprosy and more dangerous to the community than smallpox. Specifically, a man who is mentally sick may put a violent end to his life. This may terminate the usefulness of a person who has every expectation of recovery and restoration to usefulness. Furthermore, if the patient be excited rather than depressed or if he be the victim of mistaken ideas concerning the relation of people about him to his affairs, he may, by recklessness or aggression, cause the death of others, thus inflicting an injury more sudden than and as irreparable as if he communicated diphtheria or typhoid fever. Common illnesses that can cause the death of a sick person or of other

persons are concerns of public health officials and should be so recognized.

The apprehension and temporary care of the mentally ill, his danger and exploitation, his assignment and removal to proper hospitals are services necessary in every community. These services must be performed by public authorities, because the sick person may be at a distance from his home and his friends, or his friends may be inadequate to care for him. It has been customary to think of these problems as belonging to the police, but since we are no longer willing to think of the mentally sick person as a criminal, and since public care for all those who are mentally ill has assumed generous proportions in almost every state in the Union, we lack justification for continuing to turn these medical problems to departments of local government that are equipped to deal only with minor phases of the problem, instead of the heart and core of it.

It is now time to go to the root of the matter and declare that mental illness unless privately cared for should receive the oversight of medical authorities from the moment it comes to the attention of any public authorities. In the case of mental illness that requires any action on the part of community officials, the jurisdiction of the health officer should be invoked as promptly as for a case of smallpox. He is the official who should be responsible for diagnosis, temporary care and treatment, and all preliminaries to the admission of the patient to an appropriate hospital, including commitment if that be necessary.

It may be argued that the health officer is not an expert in mental diseases and might therefore be inadequate to deal with these problems. The reply is obvious: neither are other physicians in the community experts in mental diseases. The subject of mental illness is not so abstruse that it must always be placed in the hands of a specialist. The health officer has the machinery for investigation, and if in doubt about the diagnosis is in a much better position to obtain a consultation than is a police captain or the overseer of the poor. To him should be granted authority to make necessary expenditures for temporary care and transportation. He should also be given authority to commit on his own certificate to a mental hospital for a period of observation.

It may be added that this program, novel as it may appear to many communities, has already been in operation for 15 years in the State of New York. Its adoption has resulted in marked improvement in the care of mentally sick, pending their removal to state hospitals. The extension to the health officer has resulted in prompt action instead of the delay that brings no advantage to any interested

person, and merely satisfies some outworn conception of public caution and security. It puts power into the hands of the health officer, affords comfort and security to the community, and assures the patient that speedy relief which his condition demands.

CANCER

THE increase in cancer is causing much concern in every part of the world. Health departments are being urged to take up the cancer problem as a public health matter, just as tuberculosis and other prevalent diseases have been and are now being handled. That much can be accomplished has been definitely proved in the case of tuberculosis as well as practically every other contagious disease. Cancer is not contagious, as far as we know, and this is probably one reason why health departments have been slow to take it up as a part of their regular functions.

Among the major causes of death, cancer now stands second, being exceeded only by heart disease. It is estimated that it causes at least 125,000 deaths yearly in this country, and the rate is steadily increasing. This increase has been the subject of much discussion, some holding that it is apparent, not real, due to better diagnosis. The weight of evidence, however, appears to be in favor of an actual increase.

The search for the cause of cancer is world-wide. Every so often a germ is discovered in cancerous tissues and held to be the causative organism, but no such finding has been able to withstand the tests of criticism. All remember the tremendous excitement over the alleged discovery of the germ by photography by two English observers a few years ago. Without passing an opinion on the matter, it can be definitely stated that this germ has not been cultivated, and that the researches which attracted so much attention have not advanced to a satisfactory stage, as far as the control of the disease goes, and the causative factor is still undiscovered.

It is known that certain industrial occupations in which tar and its derivatives are used involve a definite tendency to the production of cancer, and experimental work with these products has shown their cancerogenic properties.

The American Society for the Control of Cancer began its work in 1913, and has accomplished much in spreading information through the meetings held throughout the country during Cancer Week, as well as by publications. People now recognize that there is no disgrace in having cancer; that it is a disease to which all are liable, those

who escape being more fortunate than the sufferers. This is about all that can be said on this point at present, but it has had a decided influence in overcoming the tendency to concealment, especially as it is coupled with the assurance that cancers are local in the early stages, and many can be cured by competent physicians.

So far, only two state governments have definitely recognized their responsibility for the control of cancer—New York and Massachusetts. The former has recently made appropriations for the purchase of radium to be distributed among the hospitals of the state. The City of New York has led in municipal work since, in 1923, a City Cancer Institute was established, which secured the free services of excellent surgeons, and has provided two grams of radium, as well as other equipment. The city is now proposing to build a 400-bed hospital in connection with Bellevue, at a cost of 4½ million dollars. It is hoped that these examples will have their influence on other cities and states.

Our most earnest endeavors must be expended in educating the public, not only in the known facts concerning the disease, but in teaching them to avoid the "cancer specialists," ghouls who swarm every part of the country. There is no more repulsive business in the world than that conducted by these quacks, fattening, as they do, at the expense of human suffering and life. The public should also be taught the limitations of X-ray and radium treatment, and be warned that they are powerful agents, extremely dangerous in the hands of any but the best informed and experienced practitioners, and with limited powers, even in the best of hands.

CONSTITUTION AND BY-LAWS, AND CONSTITUTION FOR SECTIONS, AMERICAN PUBLIC HEALTH ASSOCIATION

As Amended by the Governing Council at the Fifty-eighth Annual Meeting, Minneapolis, Minn., September 30–October 5, 1929

CONSTITUTION

ARTICLE I NAME

The name of this Association, incorporated under the laws of Massachusetts, is the American Public Health Association.

ARTICLE II OBJECT

The object of this Association is to protect and promote public and personal health.

ARTICLE III GOVERNING COUNCIL

A. *Composition:* There shall be a Governing Council consisting of:

1. The officers of the Association.

2. Thirty members of the Council, to be elected by and from the Fellowship of the Association, for three-year terms, one-third retiring each year. These members of the Council shall be nominated and elected as provided for in the By-laws.

If one of these members is elected a Section Chairman, Vice-Chairman, or Secretary, or appointed the representative of an Affiliated Society, a new Councilor to fill such vacancy shall be elected by the Governing Council.

3. The Chairman, Vice-Chairman, and Secretary of each Section.

4. Representatives to be appointed by Affiliated Societies as provided for in the By-laws. Such representatives shall be Fellows of the American Public Health Association.

5. The elective members of the Council of the Health Officers Section.

B. *Terms:* Terms of Councilors shall begin at the end of the annual meeting when elected, and shall terminate at the end of the annual meeting at expiration of term; provided that Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

C. *Reëlection:* After two consecutive terms, an elective Councilor shall be ineligible for reelection to the Council during one Association year.

D. *The Officers of the Association* shall be the officers of the Council.

E. *Functions:* The functions of the Council shall be:

1. To establish policies for the Association and for the guidance of the Executive Board and the officers.

2. To establish Sections of the Association; to combine or discontinue them when necessary; to maintain coördination among them; and to formulate general rules governing the policies of the Sections.

3. To submit to the vote of the Association all resolutions which have received the approval of the Governing Council.

4. To elect and establish qualifications for Affiliated Societies, Fellows, and Honorary Fellows as provided in the By-laws.

5. To elect the Executive Board and the officers of the Association.

6. To receive from the Executive Board at its first session, at the time and place of the annual meeting of the Association, a definitely formulated statement of a program of the major activities proposed for the ensuing year. To determine at the annual meeting of the Association in general outline the allocation of Association moneys in the budget for the ensuing year. To require a report from the Chairman of the Executive Board in which the work, the accomplishments and the financial status of the Association during the year preceding such annual meeting shall be reviewed.

7. To publish after each of its meetings an abstract of the minutes of such meetings.

F. *A Quorum* of the Council shall consist of ten Councilors.

G. *Meetings* of the Council shall be called by the Executive Secretary at the request of the President, or at the request in writing of any twelve Councilors. In the latter case, the call to meeting, issued at least twenty days in advance, shall state the purpose of the meeting.

ARTICLE IV OFFICERS

The officers of this Association shall be a President, a President-elect, three Vice-Presidents, an Executive Secretary, a Treasurer, and the Chairman of the Executive Board. The officers, with the exception of the Chairman of the Executive Board and the Executive Secretary, shall be elected by written ballot of the Governing Council as provided in this article and in the By-laws. The President-elect shall serve as such from the close of the annual meeting at which he was elected to the close of the next annual meeting, when he shall as-

tomatically become President. As President he shall serve to the close of the next succeeding annual meeting. Other officers shall serve from the close of the annual meeting when elected, until the close of the next annual meeting, and all officers shall serve in any case until their successors are elected and qualified. A majority vote of the Councilors voting shall be required to elect, and if no candidate receives a majority vote on the first ballot, the candidate receiving the smallest number of votes shall be dropped after each ballot in succession until a majority vote is obtained. The Chairman of the Executive Board and the Executive Secretary shall be elected by the Executive Board, which Board shall define the duties and authority of these officers, respectively.

ARTICLE V AMENDMENTS

This Constitution may be amended by a two-thirds vote of the Fellows of the Association present and voting at an annual meeting, provided that the specific amendment to be acted upon is published in the official publication of the Association not less than thirty days prior to the meeting, and provided further that the amendment has received the approval of the Governing Council.

BY-LAWS

ARTICLE I MEMBERSHIP AND DUES

A. There shall be eight classes of constituents who may be elected from the United States, Canada, Mexico, Cuba, and such other countries as may be admitted to representation in the Association. This provision shall not apply to Honorary Fellows or Associate Members. The respective appellations, qualifications for election, and dues shall be as follows:

1. *Fellows:* Only professional health workers, who have been Members of the Association for at least two years, and of established professional standing (whether employed by public or private agencies or in independent private practice), shall be eligible for election as Fellows, provided that a Member shall be not less than thirty years old at the time the application for Fellowship is made, and provided, further, that the following persons shall be considered to have an established standing in the profession of public health, namely:

a. A person who has attained the degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, or other equivalent degree, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has attained an academic or professional degree involving training in public health, and who has been regularly engaged in public health work for four years, having rendered meritorious service in the public health profession, either as a health officer or in responsible charge of work in a state or municipal department of health or other official public health organization.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing equivalent to that required for Fellows under paragraphs "a" and "b."

d. A person regularly engaged in public health work for at least five years, who has given evidence of special proficiency in the service of an official or unofficial public health organization, and who has attained a professional standing equivalent to that required for Fellows under paragraphs "a" and "b."

e. A teacher of public health or one of its constituent sciences. As such he shall have attained distinction as an expounder of the principles of public health or its constituent sciences and he shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch of public health service, and who has attained a professional standing equivalent to that required for Fellows under paragraphs "a" and "b."

The application for Fellowship shall be made on an approved form and shall be sponsored by two Fellows of the Association who shall be Fellows of the Section with which affiliation is desired, provided, however, that when affiliation with a Section is not desired, the sponsors may be any two Fellows in good standing in the Association. Fellows without Section affiliation shall be known as unaffiliated Fellows.

When the application has been duly sponsored and otherwise completed, it shall be transmitted to the Administrative Office of the Association, which will make note thereon of such knowledge as it may have concerning the standing of the applicant in the Association. The application shall be forwarded by the Administrative Office to the Secretary of the Section in which affiliation is desired, for the

approval of the Section Council, and when acted upon by the Section Council, it shall be returned to the Administrative Office by the Secretary of the Section, after he has made endorsement on the application of the action of the Section Council. When the application is for unaffiliated Fellowship, the Executive Board of the Association shall act in place of the Section Council. When the application has been approved by a majority of the Section Council or the Executive Board, as above provided, it shall be voted upon by the Governing Council, provided the name of the applicant shall have been officially published at least fifteen days in advance, and provided further that the application shall have been approved by the Committee on Fellowship and Membership.

A Fellow may belong to and vote in only one Section, but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the latter Section. Unaffiliated Fellows may become affiliated with a Section if approved by vote of a majority of the Council of the Section with which affiliation is desired.

The right to hold office or to serve as chairman of a committee in the Association shall be limited to the Fellows of the Association, whether Section Fellows or unaffiliated Fellows. The right to hold office or to serve as chairman of a committee in a Section shall, however, be limited to the respective Fellows in such Section.

The dues of Fellows shall be $10.00 per year.

2. *Honorary Fellows:* Honorary Fellows may be elected by the Governing Council for distinguished service in public health. Honorary Fellowship shall not include voting power or payment of dues.

3. *Members:* Persons professionally engaged in public health work shall be eligible for election as active Members when sponsored by two Fellows of the Association. They may serve on committees, except as chairmen. Dues $5.00 per year. A Member may belong to only one Section, but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the latter Section. Unaffiliated Members may become affiliated with a Section if approved by vote of a majority of the Council of the Section with which affiliation is desired.

4. *Associate Members:* Persons interested in public health shall be eligible as Associate Members. They may serve on committees, except as Chairmen. Dues $5.00 per year.

5. *Sustaining Members:* Individuals or corporations interested in public health may be elected to Sustaining Membership. Dues $50.00 or more per year.

6. *Affiliated Societies:* A state or provincial public health association or similar regional society including more or less than a state, primarily composed of professional public health workers and organized for the same general objects as the American Public Health Association, may be elected as an Affiliated Society, provided that not less than twenty of its active members and at least one-half of its active members are Members or Fellows of the American Public Health Association. Not more than one such society shall be admitted from the same area.

A society applying for affiliation shall submit a copy of its constitution and by-laws, its last annual budget, a roster of its members and such other evidences of its qualifications as may be required. It shall submit annually and at other times such reports on its financial standing, membership and other matters as may be required by the Executive Board of the American Public Health Association.

The Committee on Fellowship and Membership shall consider all applications for affiliation and report its recommendations to the Governing Council.

The annual dues of Affiliated Societies shall be one per cent of their gross anuual income, the minimum dues per society being $10.00 per year.

Each Fellow, Member, Associate Member, and Affiliated Member of the American Public Health Association shall be a member of the Affiliated Society to which he is eligible and no person eligible for election to an Affiliated Society shall be admitted to Membership, Associate Membership or Affiliated Membership in the American Public Health Association unless such person has qualified or at the same time qualifies as a member of an Affiliated Society.

For every Fellow, Member, Associate Member or Affiliated Member paying annual dues to the American Public Health Association, the American Public Health Association shall remit to the Affiliated Society of which such person is a member the sum of $1.00 per annum.

7. *Affiliated Members:* This class of membership shall include all active (namely professional) members of Affiliated Societies, and in areas where no Affiliated Societies exist such other professional sanitarians as may be elected to this grade. Dues $1.00 per year.

8. *Life Members:* Upon the recommendation of the Committee on Fellowship and Membership any individual member of the Association may be elected a member for life. Election to this grade shall not affect the privileges held by such individual in his previous grade of membership. The dues for Life Mem-

bers shall be $100.00, payable within one year after election, and this payment by such member shall exempt him from any further dues.

B. *Election:* The election of Fellows (see A1 above), Honorary Fellows, Life Members, and Affiliated Societies shall be by the Governing Council.

The election of Members, Associate Members, and Sustaining Members shall be by the Executive Board.

Three-fourths of the votes cast shall be requisite for election.

Upon the recommendation of the Committee on Fellowship and Membership the Governing Council may discontinue the Membership, Fellowship or affiliation of any constituent. Three-fourths of the votes cast shall be necessary for such action.

C. *Dues:* Dues are payable annually in advance. All constituents paying dues shall be entitled to receive the AMERICAN JOURNAL OF PUBLIC HEALTH and, or, such other publications as may be designated by the Executive Board, which shall determine the proportion of dues to be devoted to this purpose.

Constituents of any class whose dues are unpaid for six months or more shall be considered not in good standing. Constituents not in good standing shall not be entitled to vote, hold office or enjoy other privileges or powers of membership. Good standing may be resumed upon the payment of all arrears and dues in advance for one year, provided, however, the lapsed period is not greater than one year. The Administrative Office shall notify by registered mail all constituents who have been in arrears for a period of eleven months. The names of constituents in any class whose dues remain unpaid for one year or more shall be presented to the Executive Board which shall order the names of such constituents stricken from the Membership roll, provided, however, such constituents have been duly notified as hereinbefore provided in this paragraph. Constituents whose names have been stricken from the rolls in this manner may be again admitted in the manner provided for the election of new constituents in the class for which they make application, provided such person or organization complies with the eligibility requirements at the time the new application is made.

ARTICLE II GOVERNING COUNCIL

The thirty members of the Governing Council designated in Article III, Section A, Paragraph 2 of the Constitution, shall be nominated and elected as follows: There shall be a Nominating Committee composed of one Fellow elected by each Section at the preceding annual meeting, and an additional Fellow designated by the Executive Board, the latter serving as Chairman. This committee shall present to the administrative office at least two months before the next annual meeting the names of at least twenty and not more than thirty Fellows of the Association selected with due regard to geographical and Membership considerations as nominees for the Governing Council. The administrative office shall publish this list to the Membership. Upon the petition of twenty-five Fellows the Nominating Committee shall add the name of any Fellow to this list provided such petition is received fifteen days before the annual meeting. The time for closing the polls shall be determined each year by the Executive Board. The Fellows receiving the highest number of votes on a written ballot cast by the Fellows present and voting at the annual meeting shall be declared elected to fill existing vacancies. Should two or more candidates receive the same number of votes the Executive Board shall, when necessary, determine by written ballot the order of precedence.

ARTICLE III EXECUTIVE BOARD

A. *Composition:* There shall be an Executive Board of nine members elected by the Governing Council, six of whom shall be past or present members of the Governing Council, and three of whom shall be the President, the President-Elect, and the Treasurer.

B. *Terms:* The terms of the President, the President-Elect, and the Treasurer as Executive Board members shall be one year each. The terms of the other members shall be three years each, expiring in rotation, two each year. The members of the Executive Board whose terms have not expired shall at the time of the adoption of this amendment continue in office until the expiration of the term for which they have been elected. At the annual meeting at which this amendment is adopted one member shall be elected for a term of two years and two members for a term of three years. Should a vacancy occur the Governing Council shall elect a member to fill such vacancy for the unexpired term. The terms of the members of the Executive Board shall begin at the end of the annual meeting at which they have been elected, and shall continue until the end of the annual meeting at expiration of term, provided that newly elected members of the Board shall have the right to attend meetings as soon as elected, and shall have no vote until installed.

C. *Reëlection:* After two consecutive terms of three years a member of the Executive Board shall be ineligible for reëlection during one Association year. This provision shall not apply to an officer of the Association.

D. *Officers:* The Executive Board shall elect from its own membership a Chairman who shall serve in that capacity for such term as the Executive Board shall determine. It shall also designate such other officers of the Board as it may require for the conduct of its business.

E. *Duties:*

1. To direct the administrative work of the Association.

2. To act as Trustee of the Association's properties.

3. To plan methods for the procurement of funds.

4. To recommend budgets for the Association's work.

5. To conform to the policies of the Governing Council in the conduct of its work.

6. To appoint the members of the four Standing Committees and to authorize and confirm the appointment of all other Association committees.

7. To transmit a report of its proceedings and transactions to the Governing Council at least thirty days before each annual meeting.

8. In general to carry out the policies of the Governing Council between meetings of the latter.

F. *A Quorum* of the Executive Board shall consist of four members.

ARTICLE IV OFFICERS

The officers elected by the Governing Council shall be nominated from the floor by that body.

ARTICLE V COMMITTEES

There shall be four standing committees of the Association as follows:

1. Committee on Fellowship and Membership.
2. Committee on Meetings and Publications.
3. Committee on Administrative Practice.
4. Committee on Research and Standards.

Organization: All of the Standing and Special Committees of the Association shall be authorized and appointed by the Executive Board unless otherwise provided for in these By-laws. Unless otherwise provided for all section committees shall be named by the respective sections, and the personnel of such committees shall be confirmed by the Executive Board. The appointments of all Association and Section committees unless otherwise provided for in these By-laws shall expire at the next annual meeting. The Chairmen of the Standing Committees shall be designated by the Executive Board. The Standing Committees shall designate from among their membership such other officers as they may require for the conduct of their business. Each committee shall control its finances and policies within limitations prescribed by the Governing Council and the Executive Board.

Composition and Functions:

1. The Committee on Fellowship and Membership shall consist of one Fellow to be elected by each Section and an additional Fellow elected by the Executive Board. At the time of the adoption of this amendment the Executive Board shall designate which five of the members of this committee shall serve for one year, the balance to serve for two years. Thereafter, those designated to fill vacancies shall serve for a term of two years.

This committee shall pass upon the eligibility of Fellows, Members and other constituents, in accordance with the provisions of the By-laws. It shall carry on membership promotion and shall discharge such other duties as are assigned to it by the Governing Council or by the Executive Board.

2. The Committee on Meetings and Publications shall consist of five Fellows. At the time of adoption of this amendment the Executive Board shall elect five Fellows to serve for one, two, three, four and five years respectively. Thereafter, members shall serve for a term of five years.

This committee shall prepare plans and a program for the conduct of annual and other meetings of the Association. All publications of the Association, its Sections and committees shall be issued under the direction of this committee, which shall also be responsible for the editorial and financial policies and management of all such publications.

3. The Committee on Administrative Practice shall consist of fifteen Fellows as follows: Twelve shall be designated by the Executive Board to serve for a term of four years, the terms of three members of this committee expiring each year. The remaining three members of this committee shall be the Chairman, the Vice-Chairman and the Secretary of the Health Officers Section.

This committee shall engage in the collection of information regarding current public health practices and analyze the material obtained to derive standards of organization and achievement. The findings and standards may be made available to public health workers through publications, information and field service under such conditions as the committee may establish. The committee shall also be able to contract in the name of the American Public Health Association with public and private health organizations to make health surveys and to render consultant service for pay. The committee will be responsible for the financial policies of its work and may employ

such personnel as is necessary to carry on its activities within its approved budget.

4. The Committee on Research and Standards shall consist of fifteen Fellows representative of the various Sections of the Association appointed by the Executive Board. In the beginning the Executive Board shall designate five who shall serve for a term of one year, five for two years, and five for three years. Thereafter members shall serve for a term of three years.

This committee shall be responsible for carrying out research and the development of standards in the technical branches of public health service and training, and coördinate such research and standardization. This committee shall also be charged with the duty of reviewing from time to time standards already established. No standards shall be promulgated as the official and authorized judgment of the Association except with the approval of the Governing Council.

ARTICLE VI MEETINGS OF THE ASSOCIATION

There shall be at least one annual meeting of the Association, held at a place to be selected by the Governing Council. All papers and reports presented at the annual meeting shall be the property of the Association for publication, unless this right is waived by the Committee on Meetings and Publications. Special meetings of the Association may be called by a majority vote of the Governing Council, the Executive Board, or the Association.

ARTICLE VII SECTIONS

The Executive Board shall approve rules and regulations relating to the government of the Sections, and to the appointment of administrative committees. Sections shall elect their own officers.

A. *Officers* of each Section shall be a Chairman, a Vice-Chairman, and a Secretary. The Chairman, Vice-Chairman, and Secretary shall be the representatives of the Section to the Governing Council of the Association.

B. *Terms:* New terms begin and old terms expire at the end of annual meetings. After five consecutive years in any elective Section office, except that of Secretary, a member shall be ineligible to reëlection to that office during one Association year.

C. *The Chairman* shall preside at meetings of the Section.

D. *The Vice-Chairman* shall preside at meetings of the Section in the absence of the Chairman.

E. *The Secretary* of the Section shall prepare the scientific program of the Section for the annual meeting, subject to the recommendations of the Section Council, and he shall submit same to the Committee on Meetings and Publications and shall keep the minutes, and other records of the Section, and shall transmit to the Secretary of the Association a copy of the minutes of both business and scientific sessions as soon as practicable thereafter. When unable to be present at meetings, he shall thoroughly instruct a substitute as far in advance of the meeting as possible.

F. *Section Council:* There shall be a Section Council composed of the three officers of the Section and five members, who shall be Fellows of the Section.

Terms of members of the Section Council shall be five years each. In the beginning one shall serve for one year, one for two, one for three, one for four, and one for five years.

Duties of the Section Council shall be:

1. To recommend papers, and to make general recommendations in relation to the annual meeting program.
2. To advise on Section membership.
3. To advise on Section policies.
4. To submit annually to the Governing Council through the Executive Board a report of the transactions of the Section.
5. To report annually to the Governing Council through the Executive Board on the plans, scope and policy of the Section during the succeeding year.
6. To formulate rules of procedure for the Section.
7. To approve and transmit to the Governing Council resolutions originating in the Section.
8. To advise on the publication of papers and reports presented at the Section meetings.
9. To advise with respect to the appointment of technical committees, sub-committees or Section representatives on committees of the Association.

ARTICLE VIII FINANCES

All remittances to the Association shall be deposited to the account of the Treasurer. The Treasurer shall be custodian of investments of the Association and shall disburse funds in accordance with duly authorized vouchers. With the approval of the Executive Board he may establish a drawing account for the Executive Secretary, who shall send to members of the Executive Board a financial summary of receipts and disbursements each month. Once each month, or oftener if called for, he shall also forward to the Treasurer and President an itemized statement of all expenditures. The Executive Secretary and the Treasurer shall be bonded at the expense of the Association in an amount to be determined

by the Executive Board. The books of the Association shall be audited annually by certified public accountants, to be appointed by the Executive Board.

ARTICLE IX AMENDMENTS

These By-laws may be amended by a two-thirds vote of those voting on the Governing Council during the annual meeting, provided that twenty-four hours prior written notice thereof has been given. The By-laws may further be amended by a two-thirds vote of those voting at any meeting of the Governing Council called for the purpose, provided that notice thereof shall have been given at least fifteen days prior to such meeting.

A complete list of Fellows and Members of the American Public Health Association is being prepared, and will be published at an early date.

ASSOCIATION NEWS

INSPECTION TRIPS, RODEO AND BARBECUE FOR A. P. H. A. CONVENTION, FORT WORTH, TEXAS—OCTOBER 27–30, 1930

A. H. FLICKWIR, M. D.

General Chairman, Local Committee

THE committee in charge of inspection trips has arranged a very interesting schedule. On Monday there will be a visit to the water filter plant which will be of interest to all sanitary engineers, chemists, and others who are interested in a modern water system. Fort Worth obtains its water supply from Lake Worth where it is brought from a conduit with a capacity of 50 million gallons per day to the filter plant. This plant was completed in 1912 with a capacity of 5 million gallons per day, in 1917 it was increased to 10 million, and in 1923 to 20 million gallons per day. The city water works is an industry owned and operated by the City of Fort Worth, purifying, pumping, and delivering a commodity to its consumers the same as other public utilities. The revenue from the sale of water is the only income. No part of the expense of this enterprise is borne by the taxpayers. The water works is required to be self-supporting, paying for all labor, materials, interest and maturities on outstanding obligations.

Another inspection trip on Monday will be to the Swift and Armour Packing Plants. This visit will require approximately 2½ hours, and the visitors will have an opportunity of seeing a modern packing plant in operation. The inspectors of the Bureau of Animal Industry will demonstrate the methods of meat inspection at this time.

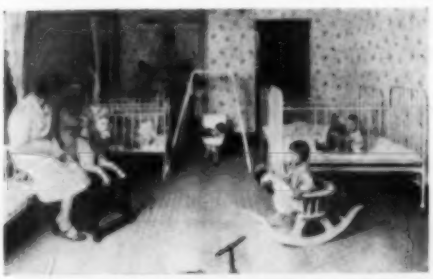
On Tuesday there will be a trip to Terrell, Globe and Southwestern Laboratories. Terrell's laboratory will interest physicians and bacteriologists as

Fort Worth Sewage Disposal Plant from the Air

it is a very extensive laboratory with a large staff and does all of the laboratory work pertaining to public health, including bacteriology and chemistry. Globe Laboratory manufactures biologicals, and the Southwestern Laboratory does a great deal of commercial work.

On Tuesday there will also be a visit to Fort Worth's Municipal Airport. It is modern in every respect and one of the largest in the United States. It comprises 525 acres in all. There are 8 passenger air lines operating in and out of Fort Worth daily and 4 air mail lines. During the month of June alone, 3,524 passengers were carried in and out of Fort Worth by 845 ships. Fort Worth is the home port of some 150 airplanes, the majority of these being owned by citizens. During the convention, visitors may take airplane rides any time that they desire at the Municipal airport.

On Wednesday a special trip to the new sewage treatment plant has been arranged. The original plant, Imhoff



Day Nursery Operated by the Department of Public Health and Welfare

with sprinkling filters, with a capacity of 8 million gallons per day, was constructed in 1923–1924 at a cost of $800,000.00. The plant was enlarged in 1929 to a capacity of 16 million gallons per day at an additional cost of $780,000.00. The enlarged plant is one of the most complete units in the country, as it comprises a combination of the Imhoff sprinkling filter system with the activated sludge methods, having secondary settling tanks, clarifiers, and digestion tanks. The digestion tanks are equipped with gas collectors. All gas is metered and record is made with the view of determining the possibility of using it for power to operate the plant. It is now being used for heating the

Health Center Operated by Department of Public Health and Welfare

buildings, digestion tanks and for fuel in the incinerator.

On Thursday there will be a trip to the various hospitals of the city including the new Methodist hospital, one of the largest in the south; Cook Memorial, one of the most beautiful; Children's hospital; Baptist; St. Joseph's; and others.

There will be several unscheduled trips to our various health centers, day nurseries, schools, etc. Fort Worth has 14 health centers, operated by the Department of Public Health and Welfare, which will be open to visitors, as it is the aim of the committee to have transportation ready at all times during the time that health centers, day nurseries, and schools are open to take small groups to visit them when they desire.

Another trip that will be made is to the Lancaster Yards of the Texas and Pacific Railroad which were recently completed at a cost of 5 million dollars. These railroad yards are modern in every respect, particular attention being given to sanitation and safety devices, and should be of interest to civil, sanitary, and industrial engineers.

There will also be a trip around Lake Worth, which is the source of Fort

Worth's water supply. On this trip visitors will have an opportunity to see some of the Texas countryside in late October when it is, indeed, most beautiful. There will be a tour of the city, including a visit to the new farm market and other modern markets in the various parts of the city. Fort Worth is noted for its excellent markets and they are always of interest to the visitors from the north and east because they display all of the fresh fruits and vegetables produced in this vicinity.

It is the intention of the entertainment committee to stage a barbecue and rodeo, probably on Wednesday afternoon and evening. The rodeo will consist of the usual features offered at real ranch roundups—riding of bucking broncos, bulldogging of steers, calf roping, trick riding, fancy roping, etc. Fort Worth is the home of many rodeo stars. Most of them will have returned from their summer engagements and should be available for our program.

A barbecue will be in the hands of experts who have for many years barbecued beef, mutton, and pork over the open fire and basted it with the famous Texas barbecue sauce.

Fort Worth Public Market

ANNUAL MEETING PROGRAM

THE Preliminary Program of the scientific sessions will be published in the September issue of the JOURNAL.

During July a letter and descriptive folder were mailed to every Fellow and Member of the Association giving details of the post-convention trip of nine days to Mexico City.

Those attending the meetings are especially invited to stop over in San Antonio, one of the most interesting cities in America. Letters of invitation have been received from several other nearby cities.

A letter giving full railroad information will be sent to the entire membership about September 10. The period of time over which reduced rates are available has been extended to take care of those going to Mexico City.

NEW MEMBERS

Health Officers Section

J. N. Baker, M.D., Montgomery, Ala., State Health Officer

Robert Bataillon, M.D., Montpellier, France, Inspector, Dept. of Hygiene (Assoc.)

J. C. Beaudet, M.D., Temiscouata, Can., Medical Officer of County Health Unit

Joseph A. Cooke, M.D., Meriden, Conn., Health Officer

Robert P. Cooke, M.D., Lexington, Va., Director, Lexington-Rockbridge Health Dept.

A. C. DeLong, M.D., San Angelo, Tex., City Health Officer

Roscoe H. Enzor, M.D., Jonesville, La., Director, Catahoula Parish Health Unit

Fred R. Fairchild, Woodland, Calif., Health Officer

Thomas N. Goodson, San Antonio, Tex., County Health Officer

J. Howard Hall, M.D., Sacramento, Calif., Health Officer

Frank Johnson, M.D., Eldorado, Ill., District Health Supt.

William H. Kelly, M.D., Sanford, Me., Health Officer

J. A. Martin, M.D., Ft. Stockton, Tex., City Health Officer

Wallace P. Moore, M.D., Memphis, Tenn., Health Officer of Shelby County

Eldridge T. Norman, M.D., Linden, Ala., County Health Officer, Marengo County

B. Q. Quillian, M.D., Douglas, Ga., Certified Public Health Commr. (Assoc.)

Daniel R. Reilly, M.D., Cortland, N. Y., County Health Commissioner

Walter H. Rhodes, A.B., Boise, Ida., City Health Officer

S. C. Ross, D.V.M., Plainview, Tex., Meat and Milk Inspector

Dr. Rafael Silva, Mexico City, Mex., Director, Dept. of Public Health

Edwin W. Stork, M.D., Somerville, Tex., City Health Officer

Dr. Ulises Valdez, Mexico City, Mex., Secretary-General, Dept. of Public Health

Laboratory Section

Ida F. Levinson, Houston, Tex., Bacteriologist and Chemist, Public Health Laboratory

C. V. Natarajan, Bangalore, India, Bacteriologist and Chemist for Govt. of Mysore (Assoc.)

Alice Waring, Savannah, Ga. (Assoc.)

Vital Statistics Section

Marguerite Cummins, Fort Worth, Tex., Registrar of Vital Statistics, Dept. of Health

Public Health Engineering Section

Claud F. Browning, Houston, Tex., Sanitary Engineer, City Health Dept.

Chester Cohen, B.S., Houston, Tex, Sanitary Engineer, State Dept. of Health

Joseph J. Crotty, New York, N. Y., Director, American Society Sanitary Engineering

Walter N. Dashiell, B.S., Fort Worth, Tex, Sanitary Engineer, City Health Dept.

Herbert E. Hargis, Austin, Tex., Sanitary Engineer, State Dept. of Health

J. R. Hobbs, Waco, Tex., Chief Dairy Inspector, City Health Dept.

H. A. Kroeze, Jackson, Miss., Director, Bureau of Sanitary Engineering, State Board of Health

T. L. Lain, Cleburne, Tex., Supt., City Water and Sewer Dept.

Carl Martin, Jacksonville, Tex., District Sanitarian

S. A. Pittman, D.V.M., Childress, Tex., Milk and Food Inspector

Fred H. Puckhaber, Dallas, Tex., Division Manager, Wallace & Tiernan Co.

Joe A. Vera, Fort Worth, Tex., President, Tarront County Tuberculosis Assn.

Food, Drugs and Nutrition Section

H. V. Cardona, D.V.M., Fort Worth, Tex., Senior City Milk Inspector

Dorothy A. Godwin, B.S., New York, N. Y., Teacher, Nutrition Dept., Board of Education

Joseph L. McGhee, Emory University, Ga., Research and Teaching, Dept. Biochemistry

Benjamin K. McInnes, M.D., Charleston, S. C., Milk Supervisor

Robert E. Sullivan, Chicago, Ill. (Assoc.)

Child Hygiene Section

Fred S. Burke, M.B., Ottawa, Ont., Dept. Pensions and National Health

Herbert E. Chamberlain, M.D., Minneapolis, Minn., Director, Minneapolis Child Guidance Clinic

Dr. Ella A. Coughlan, Orange, N. J., Physician in Public Schools

Anna B. Durrie, M.D., Michigan City, Ind., School Physician

William L. Gould, M.D., Albany, N. Y., Medical Director in Schools

Mrs. James C. Graves, Saginaw, Mich. (Assoc.)

Mathilde L. Hackebarth, Brookline, Mass. (Assoc.)

Florence H. Knowlton, Lansing, Mich., Bureau of Child Hygiene, State Dept. of Health

Theodore A. Lehmann, M.D., Long Island City, N. Y., Medical Supervisor, Dept. of Health of New York

Henry F. Mace, M.D., Albany, N. Y., Asst. State Medical Inspector of Schools

Horace Newhart, M.D., Minneapolis, Minn.,

Consulting Otologist, Minneapolis Public Schools

Emily A. Pratt, M.D., Albany, N. Y., Eye and Ear Specialist, Medical Inspection Bureau

Ina M. Richter, San Francisco, Calif., Director, Cardiac Center (Assoc.)

Gordon V. Stoddard, M.D., Montclair, N. J. (Assoc.)

Mario A. Torroella, Mexico D. F., Mex., Director, Infant Hygiene Center

Malvina Wald, New York, N. Y., Dental Hygienist, Boys' Club of New York

Public Health Education Section

Mrs. John D. Claybrook, Austin, Tex., Secretary, Bureau of Public Health Education

Edna O. Hayman, R.N., Fort Worth, Tex., District Nurse and Instructor in Home Hygiene and Nutrition

Rena Heagen, R.N., Zanesville, O., Health Education Instructor, Oregon State Agr. College (beg. September)

Donalda E. Morrison, R.N., DeKalb, Ill., Head, Dept. of Health, Northern Ill. State Teachers College

Clara L. Nanney, Richmond, Va., Field Nurse, Bureau of Tuberculosis Education, State Dept. of Health

John Potts, Fort Worth, Tex., Tuberculosis Worker

Mary M. Wyman, Louisville, Ky., Supervisor, Health and Safety Education, Board of Education

Public Health Nursing Section

Lelia Abele, R.N., Zanesville, O., with Metropolitan Life Insurance Co.

Rose M. Ehrenfeld, Ardmore, Pa., Director of Health Service, Community Health and Civic Assn.

Clara T. Gilmore, Fort Worth, Tex., Public School Nurse

Nell Hall, Hereford, Tex., County Health Nurse

Ann McGee, R.N., Fort Worth, Tex., Nurse, Fort Worth Public Schools

Edith McMichael, Lisbon, O., Rural Nurse, County of Columbiana

Irene R. McMullan, Marshall, Mo., County Nurse, Saline County

Epidemiology Section

William L. Aycock, Boston, Mass., Asst. Prof., Preventive Medicine and Hygiene, Harvard Medical School

Robert H. Hazemann, M.D., Paris, France, Rural Public Health Surveyor (Assoc.)

John L. Jones, M.D., Louisville, Ky., State Epidemiologist

Kenneth F. Maxcy, M.D., University, Va., Professor of Public Health and Hygiene, Univ. of Va.

Unaffiliated

Marshall C. Alderson, New York, N. Y. (Assoc.)

Laura B. Bennett, M.D., Los Angeles, Calif., Deputy Director, Los Angeles School Health Dept.

Clark O. Melick, Ph.D., M.D., Chicago, Ill. (Assoc.)

DECEASED MEMBERS

Mrs. Lucy Lazelle, Brattleboro, Vt., Elected Member 1920, Fellow 1925, Life Member October 2, 1929.

Harvey W. Wiley, M.D., Washington, D. C., Elected Member 1901, Fellow 1928.

Lulu H. Peters, M.D., New York, N. Y., Elected Member 1922.

FIFTY-NINTH ANNUAL MEETING

American Public Health Association

FORT WORTH, TEXAS

October 27-30, 1930

HEADQUARTERS, HOTEL TEXAS

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D. P. H.

Control of Scarlet Fever—A questionnaire was recently directed to a number of city health officers inquiring concerning control measures now used for scarlet fever. The practice varies considerably in different cities and states. Twelve questions were asked and an answer given for each question describing the methods employed in the City of Detroit. The health officers to whom the questionnaire was directed have replied with the same general form of outline. With the purpose of giving this wider publicity and encouraging more discussion, this questionnaire is here printed in full.

I

Q. What is your definition of *isolation* and *quarantine?*

A. We reserve the word "isolation" to indicate the restriction imposed upon the case affected with certain communicable diseases in such a place and under such conditions as will prevent the direct or indirect conveyance of the infectious agent to the public.

The word "quarantine" is reserved for the restriction placed upon contacts with cases of certain communicable diseases. These restrictions vary with the disease under consideration, and also with the circumstances under which the patient is isolated.

II

Q. Do you date isolation of case from date of onset of disease, date of rash, or date of isolation?

A. It is our practice to date isolation from the day on which the patient was isolated, as is required by the regulations of the State Department of Health.

III

Q. What is the duration of isolation of simple uncomplicated cases of scarlet fever, and also of complicated cases of scarlet fever?

A. Simple uncomplicated cases of scarlet fever are isolated for a minimum period of 28 days.

Cases complicated with otitis media, if the same has developed during the course of scarlet fever, will be isolated for a minimum period of 28 days, or a maximum period of 56 days if the patient is isolated at home. The isolation will continue for 1 week unless the symptoms of otitis media subside in the meantime. If, at the end of 35 days, there is a discharge from the ear, the isolation period is terminated, but a warning sign is posted until the discharge ceases, unless a period of 56 days is exceeded, in which instance the case is released completely.

If the patient has been cared for in the hospital, cultures for hemolytic streptococci are taken from all abnormal discharges at the beginning of the 25th day. The patient is detained at the hospital until either the discharge has ceased or cultures from same are found to be negative for hemolytic streptococci on two occasions at least 24 hours apart, at which time the patient will be released.

Cases of scarlet fever complicated with rhinitis and sinusitis, or with pharyngitis and cervical adenitis, or skin lesions, empyema, etc., are isolated for the same periods as indicated above.

IV

Q. Is the period of isolation of cases determined by (a) clinical conditions alone; (b) bacteriological findings; (c) legal requirements; (d) all three conditions?

A. All uncomplicated cases of scarlet fever are released at the end of 28 days on clinical conditions alone. If the patient is isolated at home, the period of isolation is terminated on cessation of clinical conditions, but he is not held longer than 56 days. If the case is cared for in the hospital, simple cases are released at the end of 28 days on clinical findings alone. If, however, complications have arisen, bacteriological examinations are made of abnormal discharges, and the patient is released upon two negative examinations for hemolytic streptococci, provided the clinical conditions are otherwise satisfactory.

V

Q. Do you limit activities of patients after release?

A. School children who have had scarlet

fever are not admitted to school until 7 days subsequent to their release from isolation.

VI

Q. What is the duration of quarantine of immediate and susceptible contacts: (a) when the patient is isolated at home with the contacts; (b) when the patient is removed to the hospital or other place; (c) when contacts are removed to the home of adult friends?

A. It is our practice to quarantine susceptible contacts (under 16 years of age who have not had scarlet fever) who are in the same home with a case of scarlet fever as long as the isolation is maintained for the case. If, however, the patient is moved to the hospital, the susceptible contacts are detained at home by a warning sign until 7 days after last exposure. Foodhandlers and teachers, unless they have had scarlet fever, may not resume their usual occupation until 7 days have elapsed, but they may do other work. If within the 7-day period they develop a sore throat and fever, they must immediately stop such work and place themselves under the care of their private physician. When contacts are moved to the home of adult friends, they will be restricted to the premises by a warning card for a period of 7 days, after which, if no symptoms of scarlet fever have appeared, they may return to school or their usual work. By the use of these two methods it is our experience that the incidence of secondary cases among contacts is reduced about 60 per cent.

VII

Q. Do you recommend any prophylactic treatment or provision for contacts?

A. 1. We recommend the removal to the home of adult friends of all young immediate susceptible contacts.

2. If this cannot be done, the removal of the patient to the hospital is a helpful method.

3. The intra-muscular injection of young contacts with 7.5 c.c. of convalescent scarlet fever serum has been found to prevent the development of secondary cases in about 85 per cent, as compared with the incidence where serum was not used.

VIII

Q. Do you recognize scarlet fever carriers? If so, what do you do with them?

A. We recognize scarlet fever carriers only by the appearance of secondary cases. The carrier state usually ceases within a couple of weeks from the release from isolation. Occasionally, several secondary cases are observed occurring at more or less frequent intervals over a period of some months subsequent to release from isolation. Carriers of this kind are hospitalized and their throats treated until negative hemolytic streptococcus cultures are obtained. Occasionally, the tonsils are removed and the carrier state ceases at once.

IX

Q. What type of restriction is required at the home for isolation or quarantine?

A. If the house is small, the whole house with certain contacts is placarded and thus placed within the isolation area. It frequently happens that the wage earner desires to reside at home. It is usually possible to seal off one room at the house so that he can have access to this room through the window. Several adults can make use of a room of this kind at such a home. In larger homes where there is more than one bathroom with toilet facilities, it may be possible to seal off a portion of it so that in the isolation area will be a bathroom, a sleeping room, provision for cooking and laundry work. Also, it may be desirable to have the food prepared in the kitchen of the home and brought to the entrance of the isolation area. This arrangement is allowed when a registered trained nurse is in charge of the case.*

The remainder of the house is called the Quarantine Area if occupied by other members of the family, of whom only the wage earners may go out and reënter as necessary. Some other homes are large enough so that a part may be sealed off completely from the rest of the home. This provision is allowed whenever possible.

X

Q. What kinds of placards do you use in the control of scarlet fever cases?

A. For the absolute restriction of a case and contacts to a limited area, a red colored placard 6″ x 9″ is employed which reads as follows:

SCARLET FEVER

No Person Shall Enter or Leave This House Until This Card is Officially Removed.

$500 Fine for removing or defacing this Notice without Written Authority from the Department of Health.

If removed or defaced without authority,

* In order to secure a supply of qualified private duty nurses who have had special training in the care of communicable diseases, we have recently arranged with the local bureau of nursing to give a special permit card which allows the possessor the privilege of leaving the quarantine area at night and residing elsewhere if she so desires. The qualifications for securing this permit are that she have at least 3 months' training in the care of communicable diseases at our communicable disease hospital or its equivalent, and 3 days' training in field work with the communicable disease nurses of this department. She must be a registered nurse, and must provide suitable testimonials from 2 physicians.

occupant of the house must report to the Department of Health, 1300 Beaubien Street, 7th Floor, Telephone Cadillac 2810, otherwise receive the same penalty.

DETROIT DEPARTMENT OF HEALTH

Sometimes a person will be reported who has symptoms suggestive of a case of scarlet fever. There are several diseases for which a similar card can be used. Hence, a warning card has been prepared which has the same size, and a space is left vacant into which the nurse can place a sticker bearing the name of the disease. This warning card reads as follows:

WARNING

A person who has symptoms suggestive of a case of lives here. The danger of catching this disease is not as great as it would be if the person were sick of the disease. However, the movement of this person is restricted to the premises until a definite diagnosis can be made and this card has been removed.

This is for the benefit of the general public. The removal or defacing of this notice is punishable by fine or imprisonment.

DETROIT DEPARTMENT OF HEALTH

Where a portion of a house is occupied by the patient and caretaker, the entrances to the remainder of the house are placarded by a warning sign of the same size which reads as follows:

WARNING

A case of scarlet fever is isolated in a portion of this home. The remainder of the house is a quarantine area which is occupied by other members of the family. Only the immediate members of the household are allowed within this area. Such occupants of this area are prohibited from entering places of public assembly and public conveyances. Children in this area are prohibited from association with any other persons during the period of this quarantine.

Any information regarding infringement of these restrictions will be appreciated by the Department of Health.

DETROIT DEPARTMENT OF HEALTH

Children who are contacts with a case of scarlet fever are frequently transferred to the home of adult friends. The following warning card is posted for a period of 7 days:

WARNING

A person who has been exposed to .... lives here. The danger of catching this disease is not as great as it would be if the person were sick of the disease. However, the movement of this person is restricted to the premises until this card has been removed.

This is for the benefit of the general public. The removal or defacing of this notice is punishable by a fine or imprisonment.

DETROIT DEPARTMENT OF HEALTH

XI

Q. Do your regular investigation report blanks indicate name of contacts, possible source of infection, milk supply?

A. Our regular investigation report blank require all of the above mentioned information.

XII

Q. Have you any special remarks to make regarding the control of scarlet fever?

A. We have not had an outbreak of scarlet fever due to infected milk for the past [illegible] years, since our milk supply has been pasteurized. About 40 per cent of our cases of scarlet fever are cared for at our communicable disease hospital. This provision is especially valuable for the care of cases where (a) it is difficult to maintain an isolation; (b) where it will be a financial hardship to the family to have their home in quarantine; and (c) where the serious illness of the patient makes it impracticable to have adequate nursing care at the home.

Occasionally, physicians desiring better medical facilities arrange with the hospital to care for their case in a private room. About 5 per cent of the hospital beds are used in this manner.

It has been known for a long time that the blood serum from persons who have recovered from scarlet fever was a good prophylactic to give young contacts. It has not been possible to arrange for the use of this serum on a wholesale basis. During the last 2 years the department has provided a Serum Clinic which has required the full time of a nurse to secure donors to fill a clinic twice weekly at the rate of $10 per sample of blood taken. There are 6 to 8 donors present at each clinic. A section of the laboratory has been set aside for the care of the blood received at this clinic. A Kahn test is made of each sample. The blood serum is collected, several samples are pooled, carbolic acid to the extent of 0.4 per cent is added, the serum is put up in bottles of 7.5 c.c. each and also 30 c.c. each, incubated for 1 week and prepared for distribution to physicians.

Outbreaks in institutions or hospitals are cared for in the following manner: Susceptible contacts on the wards and hospital personnel are Dick tested. Those found to be Dick positive are given 7.5 c.c. of convalescent scarlet fever serum. This has been observed to be a very satisfactory method of handling institution outbreaks.

Outbreaks in public schools have been a source of considerable effort. When 2 cases of scarlet fever occur in a school room, all children are inspected by the school nurse, and often by a physician for evidence of sore throat, fever and desquamation. Such cases are excluded at once, and referred to a diagnostician to determine whether or not the patient has scarlet fever. Such children are not allowed to return until given a permit card by this department. During the past 2 years the experiment has been made in 3 schools. When the number of cases at the school was excessive, a request slip was sent home to the parents seeking the privilege of doing a Dick test on their child, and stating that if the case was Dick positive the Department would appreciate an opportunity to give the child convalescent scarlet fever serum. The parents, however, were given the opportunity to have the Dick test made and the serum given by their own family physician if he so advised. Not all parents granted this privilege. These children were used as controls. The experience of these 2 years warrants a continuation of this method on a larger scale.

Experimental work is in progress which was suggested by the work of Loewenstein that anaphylaxoid could be absorbed by lanolin, and when rubbed into the skin would stimulate the production of antibodies so that the children would become Schick negative. This principle was applied to scarlet fever. Strong scarlet fever toxin was rubbed up in lanolin in proportions that 1 gm. would contain 10,000 skin test doses. Repeated applications of this induction to Dick positive children has led to their reactions becoming Dick negative. Work along this line is being actively pursued.

NOTE: All answers refer to practice by the Detroit Department of Health.

The Tragedy with BCG Vaccine at Lübeck—A serious accident involving the use of BCG Vaccine has been reported by the Berlin correspondent of the London *Lancet*. At Lübeck, 246 infants were treated according to the method recommended by Calmette. Of these, 50 became ill with swelling of the inguinal and abdominal glands and other symptoms of tuberculosis. Fourteen deaths have already occurred. It appears that the original culture was purchased in Paris and that sub-cultures were made in Lübeck. It is declared that the vaccine, as sent from Paris, was in good condition and that some mistake must have been committed in its application. Criticism has been made of the fact that the work was done outside of hospitals and that midwives were instructed to give the vaccine, provided the parents consented. The situation is being thoroughly investigated by the German Health Office.—*Lancet*, 218: 1137 (May 24), 1930.

Public Health Administration—The part that the organized medical profession should play in public health is scarcely second to that of health departments themselves. Local health societies should have public health committees who actively coöperate with and supplement the work of the health officer. Unofficial health agencies must also pattern their activities so as to fit into the official health program. Their work must augment that of the health department without duplication of effort. Medical colleges, state teachers' colleges and the public schools must play an ever increasing rôle in the promotion of health education. The development of facilities for early diagnosis and early treatment by the organized medical profession at a known cost is frankly socialization of the practice of medicine. Such socialization is inevitable. It rests with the profession whether it should seize the initiative and satisfy this demand or stand passively by and be compelled to submit to the process while it is carried out by outsiders.—Allan J. McLaughlin, *Pub. Health Rep.*, 45: 1191 (May 23), 1930.

LABORATORY

C. C. YOUNG, D. P. H.

A RAPID METHOD OF USING THE SABIN SLIDE MICROSCOPIC TEST FOR DETERMINING THE TYPES OF PNEUMOCOCCI *

JESSE G. M. BULLOWA, M. D., AND AUDREY H. SCHUMAN

Department of Health, New York, N. Y.

WITH the separation of additional types of pneumococci by Cooper and her coworkers, which now number 23, and the production of their specific antiserums, rapid typing such as can be done with the Sabin method with small amounts of material recovered after injecting a single mouse is of great value to specific therapy.

With the ordinary macroscopic precipitation and agglutination tests at least 0.2 c.c. are necessary for each test. If each of the new types were tested individually, this might require the injection of several mice for each patient, even if sputum were available for the purpose.

With the microscopic slide agglutination test developed by Sabin † in our laboratory, it is now possible to use small amounts of peritoneal exudate such as may be recovered at the end of 3 to 4 hours after the injection of sputum, using the method of Avery and his coworkers. As the best therapy depends upon prompt administration of specific serum, any procedure which limits the amount of material necessary and the number of manipulations prior to the determination of type is important.

The testing for the presence of a single specific agglutinin in a mixture of several agglutinins is a well known immunological procedure. It is necessary, however, to determine by trial whether the mixing of several agglutinating antiserums is an advantageous procedure in view of the possibility that group reactions in the typing serums might reduce the specificity of the reactions for the individual types. For this purpose we divided our 23 types into the following five groups: (A) composed of types I through 5; (B) 6 through 10; (C) 11 through 15; (D) 16 through 20; and (E) 21 through 23.

After determining which mixture of antiserums agglutinated the peritoneal exudate from the mouse, the specific type was then determined by testing the exudate against the individual type antiserums included in the mixture. However, since the types are not distributed evenly in this community, we have thought it an advantage to group them in the following way: Antiserums for Types 1, 2 and 3 ‡ were not pooled so they could be tested individually, but

* From the Littauer Pneumonia Research Fund, New York University, and the Medical Service, Harlem Hospital.

† The "Stained Slide" Microscopic Agglutination Test. Application to: 1. Rapid Typing of Pneumococci—Albert B. Sabin. *Proc. Soc. Exper. Biol. & Med.*, XXVI: 492–494, 1929.

‡ Type 3 was tested individually because of its atypical morphology and agglutination rather than because it occurred frequently. Type 3 organisms have a very large mucoid capsule and accordingly agglutinate very loosely.

the antiserums 4 through 8 were mixed, and the mixture was termed group A. Drops of diluted 1, 2, 3, and A were placed separately on one slide. If the pneumococcus being tested did not belong to one of these types, it was tested in the remaining type antiserums, arranged in groups B, C, D, and E. Thus a large proportion of our cases, due to the frequency in this community of types 1 through 8, will be diagnosed on the first slide.

According to the strength in agglutinin we have used one of three different dilutions of serum in saline in these tests: (1) 1:25, (2) 1:15 and (3) 1:10. With the antiserums available for these tests all of these three dilutions have been usable but the 1:10 dilution was most satisfactory. This method has been used thirty times and controlled by testing separately for each type. In no case have we failed to determine the type correctly by this short cut method. In addition to the saving of labor and material the early administration of specific therapy is of great advantage. The mixtures given are arbitrary; the groups may be rearranged to fit the prevalence of the various types in different age groups or in different communities.

(1) *1:25 Serum Dilutions*
Group A

0.1 c.c. of type 4
0.1 c.c. of type 5
0.1 c.c. of type 6
0.1 c.c. of type 7
0.1 c.c. of type 8

0.5 c.c. combined serums plus 2 c.c. saline

(2) *1:15 Serum Dilutions*
Group A

0.1 c.c. of type 4
0.1 c.c. of type 5
0.1 c.c. of type 6
0.1 c.c. of type 7
0.1 c.c. of type 8

0.5 c.c. combined serums plus 1 c.c. saline

(3) *1:10 Serum Dilutions*
Group A

0.2 c.c. of type 4
0.2 c.c. of type 5
0.2 c.c. of type 6
0.2 c.c. of type 7
0.2 c.c. of type 8

1.0 c.c. combined serums plus 1 c.c. saline = 2 c.c. total volume of solution A

A CONVENIENT MIXING CAN FOR USE IN PREPARING DIPHTHERIA TOXIN–ANTITOXIN MIXTURE

GEORGE F. LEONARD, M. D.

New Brunswick, N. J.

THE increasing demand for large quantities of diphtheria toxin-antitoxin mixture made it desirable to prepare large lots in a single mixture. Although the toxin-antitoxin is put through a Berkefeld filter after the mixing, we have always endeavored to keep the material as free from bacteria as possible by using only sterile ingredients and making the mixture in a closed sterile container. Since we were unable to find a suitable mixing can in any of the catalogues from supply houses, we devised a simple container, which we have found very convenient and durable, for use in preparing toxin-antitoxin mixtures. This container may be used in mixing any sterile preparation.

DESCRIPTION OF CAN

The capacity of the can is 120 liters. This allows ample air space for mixing 100 liters at one time. It is made of copper, lined with tin. It is the shape of an elongated cylinder slightly rounded at each end. The ends are sufficiently

rounded to contain no corners or grooves, which aids in its cleaning; but the bottom is flattened so that it will stand on the floor or a table unaided.

The dimensions of the can, outside measurements, are:

Height, 36″.
Width, 19″.
Height (straight side), 24″.
Manhole (in top for cleaning), 6″ diameter.

The weight of the can complete is 35.5 kg.

The can has a heavy iron band around the center on the outside, 2″ in width and ⅝″ in thickness. From this band a short shaft extends on either side of the can. Each of these is 3″ long by 1⅛″ in diameter. The shafts are used in rotating the can in mixing. Just above the iron band, and half-way between the two shafts on either side, is a large handle for lifting.

The manhole cover is threaded into the top of the can and has an asbestos or rubber gasket to prevent leakage. The former is more serviceable, as it is not easily affected by sterilization. This cover contains a flange 1½″ high on top to aid in tightening the lid. In the center of the cover there is a 1″ brass stop-cock for the introduction of all materials for mixture. To one side of this stop-cock in the cover is a small stop-cock which is used for an air vent to prevent the liquids from bubbling when being introduced through the larger opening. This small air vent stop-cock is the same as is used to drain automobile gas tanks. At the bottom of the tank is a ½″ brass stop-cock with the end small enough to go into the mouth of the bottles used in collecting the material.

The can is supported by two wooden horses with a bearing on each to support the shafts on the can. The bearings are made from a piece of iron bar 1¼″, bent to hold the shaft, and bolted to the wooden supports. These bearings could be placed on top of tables, or on brackets supported from a wall. The bearings should be about 34″ from the floor to allow free rotation of the can in mixing, and also to allow space for the bottles in emptying the can.

The can is sterilized in the autoclave before use.

MIXING

When all materials have been placed in the can, the manhole cover is made thoroughly tight by means of some wooden object such as a hammer handle or heavy stick, and the stop-cock and air vent are closed. Mixture is made by completely rotating the can on the shafts by means of the handles on the can. It is so well balanced that this is easily done even by one hand.

When mixing is complete the air vent in cover is opened and the material withdrawn from the lower stop-cock directly into sterile bottles. By slightly rotating the can near the end almost the last drop may be removed from the can into the bottles.

The cans were made by George Keller, Copper Works, Brooklyn, N. Y.

VITAL STATISTICS

LOUIS I. DUBLIN, PH. D.

Smallpox in the United States and Canada, 1929—Reports from 44 states, the District of Columbia and 8 Canadian provinces show that more cases of smallpox were registered in 1929 than in 1928 or 1927. For both countries combined, there were fewer deaths, and, therefore, a lower case-fatality rate. In Canada, there was much less smallpox than in 1928 or 1927, and the case-fatality rate was low.

In the United States, Illinois reported more cases than any other state, but Louisiana, Maine, Georgia and Texas had notably high case-fatality rates. The country experienced its highest case-fatality rates in areas where there were relatively few cases of smallpox. The only exception to this among the states in 1929 was Texas.

Seldom does a year elapse without affording one or more examples of what happens when smallpox of the more malignant type attacks a community. In outbreaks in Washington, D. C., and Camden, N. J., in 1925, the case-fatality rates were 33.9 per cent and 39.8 per cent, respectively; in 1926 there were 232 deaths in California out of 2,794 cases; and in Arizona there were 6 deaths among 18 persons attacked.

In 1927, a number of cities recorded high case-fatality rates, although, fortunately, the cases themselves were small in number. In Wyandotte, Mich., for example, only 3 smallpox cases were reported in 1927; but all died. In 1929, El Paso, Tex., was the most outstanding example of what happens when virulent smallpox attacks a community. Here there were 11 deaths among 59 cases, corresponding to a case-fatality rate of 18.64 per cent. If this ratio of deaths to cases had prevailed among the 38,062 persons who had smallpox in 45 American states last year, about 7,100 deaths would have resulted. The same case-fatality rate among 4,251 cases in Illinois would have caused the deaths of nearly 800 persons instead of the 17 which were actually charged to this loathsome disease in that state. In 1922, the case-fatality rate in 43 American states was 2.8 per cent. Had that rate prevailed in 1929, there would have occurred 1,066 deaths in 44 states and the District of Columbia, instead of the 132 that were actually recorded.—*Stat. Bull.*, Met. Life Ins. Co., 11: 6–7 (May), 1930.

Rheumatic Fever in Children—A survey in Rochester, N. Y., showed that the incidence of acute rheumatic infection was from 8 to 10 per cent; acute rheumatic fever involved 2.5 per cent; growing or joint pains were reported in 7.0 per cent; chorea in 0.5 per cent, and heart disease in 2.6 per cent. In this survey it was found that in a group of 20,000 tonsillectomized children between the ages of 5 and 15 years, 399 developed acute rheumatic fever. These children had been tonsillectomized for an average period of 5 years. In a like group of 20,000 untonsillectomized children for the same period, 630 developed acute rheumatic fever. From the same groups it was learned that 1,267 children of the operated group had growing pains, while in the control group 1,530 had the same complaint.

Chorea occurred in 85 children among the operated group and in 75 children not treated. Carditis was found in 450 of tonsillectomized children and in 595

of untreated children. These statistics seem to show that there is a definite lessened incidence of rheumatic infection except chorea in like age groups where tonsils have been removed.

The influence of tonsillectomy in chorea was studied. The incidence among 20,000 tonsillectomized children was 0.4 per cent while among as many untreated children 0.5 per cent. It is interesting to note that the incidence of carditis was 62 per cent among children who developed chorea while the tonsils were in, and 47 per cent among those who developed chorea after tonsillectomy. Removal of tonsils offers very little in the control or prevention of chorea, according to these data.

Among the total 40,000 school children, it was found that 450 whose tonsils had been removed showed evidence of rheumatic heart disease. This represented 2.2 per cent of the entire operated group. Among the 20,000 untonsillectomized children, the incidence of cardiac disease was 2.9 per cent. The lessened incidence of carditis in children whose tonsils had been removed was probably due to lessened incidence of rheumatic infection in general in those children.—A. D. Kaiser, *New York State J. Med.*, 30: 325–330 (Mar. 15), 1930.

Obstetric Costs—An investigation was undertaken in Berkeley, Calif., regarding the physical conditions surrounding maternity and infancy. The sample used was based on the selection of every third birth registered in the city during 1928. A total of 390 obstetric cases was the basis for the investigation and data on cost of obstetric service were obtained for 376 of these cases.

In the series of 390 cases, 144 individual physicians were in attendance, giving an average number of 2.7 confinements per physician. One of the outstanding facts of this study was the large number of Berkeley mothers confined in hospitals. Of the 390 deliveries, 85.6 per cent occurred in hospitals. During 1928, 83.51 per cent of the total live births occurred in hospitals and 28.9 per cent of these in one hospital. The average number of days spent during confinement in hospitals was 10.

In taking physicians' charges, the amount billed to the patient was used. The average cost per obstetric case was $92.12, with a median of $73.87. The modal or most frequent charge was $50. There was no charge by the physician to 6 patients; the other expenses in these cases totaled $760.75 or $126.79 per case. Thirty-one deliveries took place in the county hospital; 17 of the 31 patients paid $249.80, averaging $14.69 per case; the other 14 paid nothing for their obstetric care. The sums paid ranged from $.50 to $70. Six of the 390 confinements were among industrial policyholders of the Metropolitan Life Insurance Company. The total cost of their obstetric service was $338.65, averaging $56.44 per confinement. Only one was confined in a hospital at a total cost of $103.65. The physicians' charges in these cases were $50 apiece for 4 and $35 and $25 for the other 2.

The total cost of obstetric service to Berkeley mothers, in which at least one item of cost is represented, averaged $213.75 per case. In half of the cases the charges were $179.41 or less. The average calculated on the basis of the 390 cases, including patients who did not pay anything, would be reduced to $206.07. It is safe to state that the total cost of the average obstetric case in Berkeley is somewhere between $200 and $215. In exceptional cases and especially those with complications, it may run to $1,000 or even to $1,800. The mean cost per case for nursing service was $116.21 with a median of $89.— The Cost of Obstetric Service to Berkeley Mothers, R. A. Bolt, *J. A. M. A.* 94: 1561–1565 (May 17), 1930.

The Suicide Record for 1929—The suicide rate for American cities reached 18 per 100,000 in 1929, the highest figure on record since 1916. The tabulated results of 151 American cities with an estimated population of nearly 38,000,000 showed an increase in the rate from 16.9 in 1928 to 17.5 in 1929. Eighty cities showed an increase over 1928, 56 showed a decrease and in 15 the rate remained stationary. San Diego yielded first place to Sacramento but most of the Pacific Coast cities outranked all others in their tendency to suicides. The 7 cities and boroughs with more than 1,000,000 population showed the following rates: Manhattan and the Bronx, 27.8; Los Angeles, 18.1; Detroit, 18.1; Cleveland, 16.8; Philadelphia, 16.3; Chicago, 15.8, and Brooklyn, 14.3.

Of particular interest is the decrease in the suicide rate for Chicago from 18.1 in 1928 to 15.7 in 1929, while the rate for Cincinnati increased from 16.9 to 25.4. The rate for Denver decreased from 27.9 to 20.4, while that for Hartford decreased from 17.4 to 8.7, and New Orleans from 19.6 to 15.4.

The increase over 1928 was by no means as marked as had been expected after the business depression following the stock market collapse. This undoubtedly had a direct bearing on the increase in suicides but when the suicide rates for a period of years are correlated to business failures, there is a fair consistency in the correlation.

In 20 European countries with a population of 240,000,000, there have occurred 253,546 suicides from 1921 to 1927. The annual number has increased from 31,874 during the first year of the period to 40,527 during the last. The European suicide rate has increased from 13.3 per 100,000 in 1921 to 16.8 in 1927. In the U. S. Registration Area the actual number of suicides increased from 52,167 for the period 1919–1923 to 67,888 for the period 1924–1928. The suicide rate for the whole period (1919–1928) increased from a minimum of 10.2 in 1920 to 13.6 during 1928.

The suicide record for Finland dates back to 1751; the rate during 1751–1760 was 1.18 per 100,000, increasing gradually to a rate of 12.5 in 1918, then to 15.1 in 1925, and decreasing to 14.8 in 1926. Sweden's record begins with 1781, starting with a rate of 2.22 in 1781–1820, reaching 10.34 during 1881–1890 and 14.39 during 1921–1925.—F. L. Hoffman, *Spectator*, 124: 3, 18–20, 22 (May 22), 1930.

Airplane Fatalities—While deaths from airplane accidents have never attained much numerical importance in the United States, the latest data suggest that the time may not be far off when they will become a significant cause of death. In the U. S. Death Registration Area in 1928, airplane fatalities numbered 473, as compared with only 214 in 1927; and the death rate increased from 0.2 per 100,000 in 1927 to 0.4 in 1928. In California alone, the number of deaths increased from 27 in 1927 to 96 in 1928, and the death rate from 0.6 to 2.1.

The government statistical records for these accidents date back only to 1919, in which year 156 deaths were reported to the U. S. Bureau of the Census, with a death rate of 0.2 per 100,000. This identical death rate prevailed for 6 of the 9 years from 1919 to 1927. Then, in 1928, came a sharp rise.

The story of the mortality in airplane accidents is very different from that for automobile fatalities. Deaths from this latter cause began to attract the attention of vital statistics bureaus in 1906, when 183 fatalities occurred in the U. S. Registration Area, corresponding to a death rate of 0.4 per 100,000. Immediately, however, a sharp rise was observed. The mortality rate doubled in 2 years and tripled in 3; and in 10 years

it reached 5.9 per 100,000—substantially 15 times as high as in the first year for which records were kept. Obviously this rapid rise in the automobile death rate was due, in large part, to the rapidly increasing number of cars in use. The increase in airplanes, of course, has been a much slower process. Nevertheless, the sudden doubling of the death rate in 1928 suggests that, with more and more planes manufactured and used, the airplane death rate may be about to take a decided upward course.

More deaths from this type of accident occur in California than in any other state. In every year of the period from 1919 to 1928, without exception, the airplane death rate was higher in California than in any other state. A recent report of the U. S. Department of Commerce, nevertheless, accounts for the high mortality in California. This report shows that more than one-sixth of the licensed airplane pilots of the country reside in that state. The actual number is given as 2,244, against 1,153 in New York, 671 in Illinois and 640 in Texas. During the 10-year period, 1919–1928, there were 1,896 airplane deaths in the U. S. Registration Area. Of these, 332 occurred in California, 132 in Ohio, 106 in New York, and 105 in Illinois.

Complete data on airplane fatalities for 1929 are not available at this writing. The National Safety Council has stated the number of deaths in that year, from "civil aviation accidents" alone, as 485. When 91 fatalities in the Army, Navy and Marine Corps Air Services are added to this number, some increase, at least, will be shown over the previous maximum, as recorded for 1928.—*Stat. Bull.*, Met. Life Ins. Co., 11: 3–4 (May), 1930.

Diphtheria Mortality in United States Cities, 1929—A study of diphtheria mortality in 81 cities, all having a population of more than 100,000, showed a steady decrease in diphtheria death rates throughout the country. The rate for the group as a whole was 7.69, the actual number of deaths, 2,698, being lower than that reported for many years. The northern geographic divisions experienced, for the most part, lower diphtheria death rates in 1929 than in 1928. The rate for the New England group showed a gratifying decrease from 8.59 in 1928 to 7.30 in 1929. The Middle Atlantic cities as a group, although including the largest population, had a lower diphtheria death rate than either the cities of the East North Central or West South Central states, and almost exactly the same rate as the New England and East South Central cities. The rate for the Middle Atlantic cities decreased from 10.80 in 1928 to 7.57 in 1929. The South Atlantic group showed the low average diphtheria rate of 4.70. The Mountain and Pacific cities had the lowest rate, 3.35, of any geographic division in 1929. The rate in the East North Central cities remained about the same, 11.30 in 1929, 11.29 in 1928. The groups of East South Central and West South Central cities both showed increases in 1929 as compared with 1928, the cities of the West South Central area manifesting a rather sharp rise in diphtheria mortality from 6.18 in 1928 to 9.17 in 1929.

Improvement in diphtheria mortality was noteworthy in New Haven, Hartford, Cambridge and Bridgeport. Jersey City, Utica, Rochester and Syracuse showed low 1929 rates. New York City continued its remarkable improvement. Baltimore and Atlanta both made new low records for 1929, 3.9 and 3.8 respectively. Cleveland also made a particularly good record of 3.9. Nashville had in 1929 its lowest diphtheria mortality (4.9) since 1924. The 1929 rates in Duluth, St. Paul and Minneapolis, 0.8, 1.0 and 5.6, respectively, were surprisingly low, considering the

severe climatic conditions which prevail in these cities. Seattle had the third lowest rate in the country, 0.5 in 1929.

Lynn and Fall River showed increased diphtheria mortality in 1929. The rate for Newark remained the same as in 1928, 20.0, and was the second highest in the country. Norfolk, which showed an increase, had the relatively high rate of 6.5 in 1929. Detroit showed an increase from 16.2 to 21.8, the highest 1929 rate in the country. Louisville, Birmingham and Memphis showed increases in diphtheria mortality in 1929 compared with 1928. Dallas, San Antonio, Chicago, Paterson, Springfield, Mass., and Camden were in the group with the highest diphtheria death rates in the country in 1929.—Diphtheria Mortality in Large Cities of the United States in 1929, *J. A. M. A.*, 94: 1838–1841 (June 7), 1930.

Vital Statistics for Spain—During 1929, there were 653,571 births in Spain, giving a birth rate of 28.9 per 1,000 population compared with 29.7 in 1928. The excess of births over deaths was 246,150 against 253,068 in 1928, indicating that, at the present time, the population of Spain is increasing by about a quarter of a million per year. Infant mortality was 123 per 1,000 births in 1929 and 125 in 1928.

General mortality declined from 18.4 in 1928 to 18.0 in 1929. Decreases over 1928 were shown for tuberculosis all forms, 136.4 per 100,000 population in 1929 against 139.0; and cerebral hemorrhage and softening, 124.8 and 130.6. All communicable diseases showed decreased mortality rates. Heart disease increased from 163.4 per 100,000 population in 1928 to 168.9 in 1929; influenza, 15.4 to 24.3; pneumonia, 39.5 to 43.0; and other respiratory diseases, 147.2 to 160.0. Puerperal septicemia showed a decrease from 22.0 per 1,000 live births in 1928 to 20.0 in 1929. —*Pub. Health Rep.*, 45: 582–583 (Mar. 14), 1930.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C. E.

Overnight Camps—Inspection of 170 overnight camps in New Hampshire revealed camps of many types, varying greatly in size and accommodation. An estimate places the number of accommodations at these camps for one night at 6,393. Included in the inspections, which were made under the general laws in regard to nuisances, there being no regulations as yet on definite standards for overnight camps, were water supply, toilet facilities, and general camp cleanliness. If dining rooms were attached, as was the case in 56 camps, the equipment for caring for the food was inspected.

The water supply in general was very good. In some instances suggestions were made for improvement. Of those that were analyzed only one was found dangerously polluted. In regard to toilet facilities, 17 camps had installed chemical toilets, 76 had provided flush toilets with proper sewage disposal, and the remainder, pit privies. Where necessary, need for improvement was called to the manager's attention. Managers, in general, welcomed inspection and suggestions.

The estimated investment of the bungalow villages is about $150,000. Many of these have their own laundries, run-

ning water, electric lights, shower baths and modern conveniences. It is felt by the State Board of Health that no danger or menace exists in the tourist camp for the traveler.—Anon., *Health*, New Hampshire State Board of Health, Sept., 1929, pp. 2–5. (From *Public Health Engineering Abstracts*, Feb. 22, 1930. Abstr. F. O. A. Almquist.)

Progress in Water Purification—The results of previous investigations on the problems of softening, recarbonation, flocculation and increased use of chlorine are described. The question of the pollution and self-purification of rivers is discussed. River pollution may be estimated by the oxygen demand. An electrical process for following the course of covered mains and a new American rustless iron pipe are described. Improvement in aeration technic has led to the removal of noxious gases, a considerable reduction in the amount of chlorine required, and better flocculation. The increasing use of sodium silicate and lime for the reduction of lead corrosion is dealt with.

Researches on the significance of pH values in softening and experiments with natural zeolite are mentioned. In connection with flocculation, the results obtained by the production of artificial turbidity for combating strong algal growths in raw water tanks are especially noticeable. The filter rate was considerably lengthened and, in the case of a residual turbidity of 100 mg. per liter, heavy flocs, which carried away further quantities of organisms, formed in the settling tank.

A good flocculation is said to be obtained by a new type of mixing plant, the operation of which depends on the gradual reduction of the water velocity to quite a small value. Useful experience with superchlorination has been obtained in Toronto; the greatest amount of chlorine used was 3 mg. per liter.—N. J. Howard, *Surveyor*, 75: 203, 1929; *Wass. u. Abwass.*, 26: 173, 1929. (From Papers of Water Pollution Research Board, England.)

Chloramines in the Disinfection of Water—Various investigations of the formation of monochloramine, by the addition of ammonia or ammonium salts to calcium hypochlorite or chlorine, and its use in the disinfection of water are discussed. Details and tables of results are given of experiments carried out to determine whether the addition of ammonia or its compounds increased the germicidal efficiency of chlorine and, if so, under what conditions the efficiency was greatest. When the water was clear and of low organic content, the addition of ammonia with chlorine retarded the disinfection, except when the chlorine was in great excess of the ammonia. When small quantities of chlorine were used the final disinfection was less than with chlorine alone. In turbid waters of high organic content, the addition of ammonia increased the germicidal velocity of the chlorine.

There was no apparent loss of free or saline ammonia. The most effective ratios of chlorine to ammonia were not definitely determined, but in turbid waters of high organic content satisfactory results were obtained with the ratios of $Cl_2 : NH_3$ of 1 : 2 and 1 : 3.

The chlorine-ammonia method is recommended for the treatment of raw unfiltered waters, especially if long periods of detention after chlorination are available. References to literature are given.—J. J. Hinman and K. C. Beeson, *J. Am. Water Works A.*, 21: 1705, 1929. (From Papers of Water Pollution Research Board, England.)

Dechlorination of Water by Activated Carbon—The author describes a series of experiments carried out to obtain practical knowledge of the working of an activated carbon filter for the dechlorination of superchlorinated wa-

ter. The first series of experiments described was of short duration carried out with fresh filter material. It was found that the percentage decrease in chlorine content for a given length of filter run and an equal speed of flow was independent of the original concentration of the chlorine. Increased speed necessitated increased length of filter. Different activated carbons (AKT II, III and IV and Urbain HAS 18) are classified by the length of filter run required to reduce the chlorine content of a water by one-half at a speed of 1 cm. per second and a method of calculating the size of filter required is described.

In further experiments continuing over a considerable time it was found that the life of the filter material without regeneration varied with the composition of the water. Regeneration investigations showed that treatment of the carbon either with a hot soda solution in the filter or by removing from the filter and heating to a dull red heat was successful.

"Fatigue" in the filter appeared to be due to the formation of a gelatinous membrane which was peptonized by the hot alkali, or contracted by heating. With a hard carbon the loss of material in regeneration should not be serious.

Experiments on a practical scale in superchlorination and dechlorination were made with a traveling "Dabeg" plant to test the possibility of a supply of Elbe water for Aussig, and on the very favorable results the decision to use Elbe water as a supplementary supply was based.

In the course of discussion the author stated that his calculations of the size of filter required held good for most natural waters but the presence of ammonia, by the formation of chloramine, lengthened the time necessary for dechlorination.—H. Pick, *Vom Wasser, Ver. deutscher Chemiker*, Berlin, 3: 71, 1929. (From Papers of Water Pollution Research Board, England.)

Odor Control at the Macon Sewage Plant—The Macon, Mo., sewage plant is located close to a residential district and serves a population of 3,500. It consists of coarse bar screen, Imhoff tank, sludge drying bed and sprinkling filter. For several years odor difficulties have arisen. The authors carried out an experiment on chlorination as a means of odor control during 4 consecutive days in midsummer. Hourly observations were made of the rate of sewage flow, applied and residual chlorine, hydrogen sulphide and odor at the filters and at a distance of 400 ft. from the filters. The treatment prevented odors and at a maximum dosage cost $4.65 per m. g. The dosage depended on the time of the day and varied from 3.9 to 10.9 p.p.m. To avoid odors, a maximum of 1.5 p.p.m. of volatile hydrogen sulphide should not be exceeded.—W. S. Johnson and H. Bosch, *Pub. Works*, 60: 400, 1929.

Living Tubercle Bacilli in a Septic Tank Effluent—Inoculation experiments on guinea pigs showed that chlorinated septic tank effluent did not cause tuberculosis, while an untreated septic tank effluent aroused the disease in inoculated animals.

The tubercle bacillus therefore withstands not only acids, alkalies, and digestion processes, but also the septic processes in a septic tank.—S. L. Cumins, D. Davies, and C. M. Acland, *Tubercle*, 10: 310, 1929; *Zentralbl. f. d. ges. Hyg.*, 20: 409, 1929. (From Papers of Water Pollution Research Board, England.)

Results of Tests on Sewage Sludge—This bulletin gives an account of the objects, methods, and results of tests made at the experimental sewage testing plant of the Engineering Experiment Station of the University of Illinois. The plant itself, the sewage, and the method of supplying sewage to the

plant are described. Sludge digestion in deep and shallow Imhoff tanks was studied.

Sludge from a deep tank drained and dried better than that from a shallow tank and was of better quality. The shallow tank also accumulated more sludge, digestion apparently being slower, and had the disadvantage that sludge had frequently to be removed.

Tests on the effect of the addition of moisture to sludge on drying beds showed that well moistened sludge did not form a hard surface, and was more cracked and broken than unmoistened sludge. In almost every case, but especially with well digested sludges, the more moistened sludges showed a lower final moisture content and a greater volume reduction than less moistened sludges. It appears that covering sludge beds must therefore be ineffective in assisting drying and may even handicap the process by lack of ventilation.

Sludge frozen on the beds gave on thawing a very easily drained sludge, fine grained and easily pulverizable. The water content was less than with unfrozen sludge but the per cent reduction in volume was also less. It therefore appears advisable to draw sludge from tanks during winter months and also to remove frozen or semi-frozen sludge from beds to make room for more. In this condition it is easily transported and may be allowed to thaw and disintegrate at the point of final deposition. Activated sludge also drains well after freezing.

Efforts were made to find an expression for the relation between the factors affecting sedimentation and the per cent removal of suspended particles. Observations were made with coal and sand as sediment and with dilute and concentrated sewage. It was not found possible to formulate an expression for a relation between the different factors, but from tests in which all possible factors were controlled an empirical formula was devised, expressing the relation between the different variables. With low concentrations, however, the per cent reduction of settling solids was found to be quite erratic.

Experiments on gas production in ordinary Imhoff tanks showed that the amount increased with the amount of sludge accumulating in the tank and with increase in temperature. The average quantity produced was about 0.3 cu. ft. per head per day. It is not practicable to heat Imhoff digestion chambers above the temperature of the incoming sewage because of the heat lost in the flow of sewage and disturbance of sedimentation by convection currents. Separate sludge digestion experiments carried out in a shallow Imhoff tank showed that it was advantageous to carry out digestion in two stages, the first in an upper compartment separated from the lower by a slot trapped against reverse flow of gas. The size and operation of such a tank are described. The rate of gas production was greatly increased by heating from 10° C. to 26° C.—H. E. Babbitt and H. E. Schlenz, *Univ. of Illinois Eng. Expr. Sta. Bull. No. 198*, 1929. (From Papers of Water Pollution Research Board, England.)

2,300 Tons of Pollution Afloat in Manhattan Atmosphere—An investigation by Professor H. H. Sheldon indicates that approximately 2,300 tons of foreign matter float in the Manhattan atmosphere. Professor Sheldon used a rather unique method in making the tests by measuring the amount of dust and dirt caught by the air conditioning systems in Broadway motion picture theaters. These systems, in addition to circulating the air, wash and humidify—or dehumidify—it. In this process, which is accomplished by water sprays, 96 per cent of the foreign particles in the atmosphere is removed. The test revealed that the 341,000,000 cubic feet

of air passing through the tanks contained 11¼ cubic feet of dust and dirt. This ratio applied to the city's atmosphere gives 35,160 cubic feet, or 2,300 tons, as the amount of foreign particles in the air. Samples analyzed indicate that 65 per cent of these particles was unconsumed carbon, 15 per cent stone dust and mineral matter, and 20 per cent germs.—Anon., *Am. City*, 41, 2: 167 (Aug.), 1929. (From *Public Health Engineering Abstracts*, Feb. 22, 1930. Abstr. J. B. Harrington.)

The Effect of an Alternating Electric Current on Tubercle Bacilli in Milk—This article includes a description of experiments conducted by the author in treating raw milk artificially infected with tubercle bacilli in commercial apparatus designed to heat the milk almost momentarily to about 160° F. by passing a 220 volt, 60 cycle alternating current through it and cooling it as quickly as possible. The heating unit consists of 2 water cooled flat carbons 24" long and held 3" apart by hard rubber spacers. This forms a rectangular chamber 3" by 4" in cross-section through which the milk is pumped. The electrical input is constant and the temperature to which milk is heated is controlled by regulating the rate of flow by means of a hand controlled valve and by automatically varying the current in the field of the motor driving the centrifugal milk pump through the medium of a vapor tension bulb located in the milk line beyond the carbons. The milk is heated regeneratively from about 60° F. to 120° F. and then electrically from 120° F. to 150° F., 155° F., or 160° F., the temperatures used in the experiments.

Three experiments were run, one in July, 1924, one in November, 1925, and one in June, 1926. In the first experiment 50 gal. of milk inoculated with a large quantity of a culture of bovine tubercle bacilli was treated at 160° F., then 50 gal. similarly inoculated at 155° F., and then another 50 gal. of inoculated milk were treated at 150° F. Samples were collected at various points at the beginning and end of each run and injected into guinea pigs. The second and third experiments were run in the same way except that 100 gal. of milk were used for each run and human as well as bovine types of tubercle bacilli were added to the milk. The author reports that all the guinea pigs injected with inoculated raw milk and with milk preheated to 120° F. died from generalized tuberculosis or showed it at necropsy. Some of the guinea pigs after injections with milk treated at 150° F. showed either generalized or localized tuberculosis. The guinea pigs given injections with the samples of milk treated at 155° F. and 160° F. remained healthy and increased in weight.

The author states that " The electrical conductivity method of treating milk effectively destroyed tubercle bacilli with which milk had been artificially inoculated." He does not, however, say whether he believes the results to be due to some electrical effect in addition to heat, as the title might imply, or whether the same results might be expected by the application in some other form of the same degree of heat for the same length of time.—Charles M. Carpenter, *J. Infect. Dis.*, 44, 5: 347–356 (May), 1929. (From *Public Health Engineering Abstracts*, March 1, 1930. Abstr. Walter D. Tiedeman.)

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M. D., AND LEONARD GREENBURG, PH. D.

Report of Industrial Hygiene Committee: State and Provincial Health Authorities of North America, 1930—A questionnaire was sent to the various state and provincial departments of health to determine the extent of industrial hygiene activities. It was found that, even in those states and provinces where the law requires reporting of occupational diseases, the large majority receive few or no reports of cases. In the states and provinces which compensate for occupational diseases under the schedule form, practically only those occupational diseases are reported which are compensated. In those states and provinces where all occupational diseases are compensated, the number of cases reported is woefully incomplete in the majority of instances.

Four departments of health have bureaus or divisions of industrial hygiene; 1 a bureau of housing and industrial hygiene; and 1 a bureau of industrial hygiene and factory inspection; 5 departments of health have a specific appropriation for industrial hygiene purposes; 4 departments have a laboratory for industrial hygiene; and 5 use laboratory facilities of the department of health or consultants.

With few exceptions, comparatively little work is being done by the health agencies in this country. Connecticut has prepared a working classification of industries and of hazardous materials, processes, and conditions. The industries are divided into about 100 groups, and the hazardous materials, processes, and conditions into about 70. This system provides an organization of our information on occupational disease exposures in the various industries in the states.

The control of occupational disease requires more than plant inspection. Before effective work can be done in this direction, it is necessary that scientific methods, physical and chemical procedures be applied to the problem. For many materials, the minimal amount which will affect the health (threshold dose) is known, and it is only by utilization of these procedures that we can know definitely whether the exposure is below that limit. This necessitates a laboratory and technical assistance.

The minimum set-up for a division or department of occupational disease is a physician with a broad knowledge of occupational diseases and industrial environment, a chemical engineer, trained in industrial procedures, capable of making the necessary field determinations of gases, dusts, fumes or other materials or conditions that may affect health, a clerk and a laboratory. The laboratory must be specially equipped to make these determinations. This division should:

1. Secure and investigate reports of occupational diseases.

2. Make necessary field studies of workroom environment including special determinations of gases, dusts, fumes and toxic materials; air velocity, temperature, humidity, general ventilation, illumination, or any conditions or processes thought to be affecting health.

3. Provide a source of information for physicians, industry, or any agency interested in the cause, treatment, and prevention of occupational disease.

The committee found a certain amount of important work performed during the past year such as studies in sandblasting and silicosis, radium painting, lead poisoning, benzol and other poisonings, ventilation and illumination. Several states have adopted codes governing spray painting.

It is recommended that every effort should be made to increase the reporting of occupational diseases: that general practitioners should be further impressed with the necessity of securing complete occupational histories of their patients; that more time should be devoted in the medical school to the el-

fect of occupation upon health; that surveys should be made of those industries in which potential hazards are known to exist in order to clear up the conditions causing occupational diseases; and that special laboratory facilities and technical personnel are required in this field.

There accompanies the report a list of hazardous substances, processes and conditions for coding occupational diseases, devised by the Connecticut State Department of Health. Likewise, a chart showing by states and provinces whether or not reports of occupational diseases are required; whether received by the health or labor departments or both; whether a reporting form is required; the number of cases reported annually for the 5-year period ending in 1929; whether or not a bureau of industrial hygiene exists and the personnel maintained; the appropriations made; laboratory provisions; and whether or not important legislation upon the subject exists and the same in regard to important regulations for 1929–1930.—Mimeographed Report distributed by the Connecticut State Department of Health, Hartford, June 10, 1930.

I. Classified Index of Occupations. II. Alphabetical Index of Occupations—These two volumes prepared by the U. S. Bureau of The Census for the 15th Census of the United States, 1930, have now become available for distribution. The Indexes are based upon the occupational designations returned at the previous three censuses with certain supplements.

The *Classified Index* which sells for 50 cents comprises 205 pages. It includes the subject of "repeater" occupations with their symbols, a grouping by industries with proper symbols, a brief industry index with symbols, and then an extensive alphabetical arrangement under the various industrial classifications also with symbols. The Index enables one to find the various occupations which may exist in the given industries, trades and callings.

The *Alphabetical Index* is a volume of 527 pages, repeating in its fore part the industrial classification and industry index of the former volume, but devoted almost entirely to an arrangement of occupations in alphabetical order, a second column showing the industry and a third column the symbol to be used designating the given occupation.

The price of this volume is $1.00.

Complete explanations for use accompany each volume.

The Indexes will be used by the Bureau of The Census in classifying the occupations returned on the population schedules at the 15th Census, and in classifying the occupations returned on birth and death certificates.

The Indexes were prepared by Dr. Alba M. Edwards, expert on occupations, under the general supervision of Dr. Leon E. Truesdell, chief statistician for population.

[Abstractor's comment: These volumes, arranged for standardization of terminology in occupations, should prove invaluable to all manner of offices, bureaus and persons dealing with occupations.]—U. S. Bureau of The Census, Washington, D. C.

Household Mechanical Refrigeration—This is Report 2 of the Committee on Poisonous Gases of the American Medical Association and has special reference to the toxicity of refrigerants used. The Report was drafted for the committee by Dr. Carey P. McCord, Cincinnati, O. There is a discussion of the systems of household mechanical refrigeration, a list of 44 substances that may be used as refrigerating mediums, and a statement of the objections to both the single and the multiple systems, the latter being potentially a far greater source of harm than the former.

The fundamental properties of an

ideal refrigerant are listed, such as non-inflammability, non-explosiveness, non-toxicity, absence of odor and of visible fumes, operation at low pressure, lack of corrosion, absence of deleterious effects on foods, etc. A second table shows the relative toxic properties for six of the commoner refrigerants used and there is a discussion of carbon dioxide, dry ice (solid carbon dioxide), silica gel, methane, ammonia, sulphur dioxide, ethyl chloride, and methyl chloride, with a considerable discussion of the literature on intoxication, particularly of methyl chloride.

Industrial poisoning from ammonia, sulphur dioxide, and methyl chloride, and the matter of the introduction of warning agents, refrigeration codes and moral obligations are discussed.

In part summary of the committee's position are these findings: Household refrigeration is a factor for good in the promotion of public health and economic living. For this reason no action or attitude is warranted that would tend to hamper the manufacture and use of safe refrigerators. Greater precautions, however, are called for. The introduction of warning agents *per se* (toxic or non-toxic) is regarded as not commendable. "This practice does not adequately provide protection for all classes of persons, including infants, locked-in children, the insane, the sick, or the aged." Codes governing the safe manipulation of refrigerants should attain uniformity through joint efforts under such auspices as the U. S. Public Health Service.

Every manufacturer of a product that may injure the user has a responsibility to try out and test all substances with harmful properties. The use of toxic substances without adequate safeguarding or warning should lead to penalties. "It is no longer to be tolerated that manufacturers procure information as to toxic substances through the deaths and illnesses of consumers." In connection with the recent deaths from methyl chloride, sufficient medical and chemical data were already available to have prompted safeguardings. Unfinished and unpublished work indicates that a practical refrigerant is now promised which is sufficiently free from toxic properties. As with foods and drugs, a similar federal law and governmental supervision are needed in regard to possibly harmful substances.—Committee Report, A. M. A., *J. A. M. A.*, 94, 23: 1832–1838 (June 7), 1930.

Refrigeration—It is estimated that 60 per cent of the families in the United States do not have proper refrigerating facilities in their homes. The methods of refrigeration involve either the use of ice or the evaporation of some highly volatile chemical substance which abstracts heat.

Among the essentials no harmful effects should result from the refrigerant used, either upon the food or by leakage into the rooms. A mechanical refrigeration system consists essentially of two parts—an evaporator and a compressor with adjuncts—and such systems are usually constructed as single units or so-called multiple systems (the latter in apartment houses, etc.).

The most common refrigerants used are sulphur dioxide and methyl chloride, but domestic use is also made of ammonia, carbon dioxide, and ethyl chloride. There are advantages and disadvantages to all of these, particularly in relation to their toxic qualities or, as in the case of carbon dioxide, to the excessive pressure—700 to 900 lb.—under which they are used. (The properties of sulphur dioxide and methyl chloride are briefly summarized.)

Leaks in mechanical refrigerating systems are common. Investigations made by the Department of Health during recent months disclosed 190 leaks; of these, 152 were in multiple systems, and 38 in single units. Leaks were

found of nearly all of the common gases used, sulphur dioxide being the most frequent, with 82 leaks; and methyl chloride the next, with 77. Leaks in multiple systems are much more common than is ordinarily supposed, and on this account a legal code of specifications is essential. Ten deaths have been definitely attributed to the escape of poisonous refrigerant gases into places of human habitation.

Leaks of sulphur dioxide are readily detected from the characteristic pungent odor and suffocating effect, but the gas may be tested for with ammonia fumes, when a white cloud is formed at once. In the case of methyl chloride there is no simple way for the householder to know whether a leak has occurred, so that the Department of Health should be notified at once when a leak is suspected. Dr. Julius Stieglitz of the University of Chicago recommends a test apparatus consisting of an alcohol lamp with a fine copper mesh screen around the flame. In the presence of methyl chloride, the flame turns a greenish color.

A number of precautionary measures are described.—Arnold H. Kegel, *Chicago's Health*, 24, 23: 126–132 (June 10), 1930.

Diagnosis of Silicosis—In a disputed case of silicosis in which the postmortem examination when held showed that the man had died of silicosis, the Home Secretary (Mr. Clynes) replied that the diagnosis during the workman's lifetime had been confused with anthracosis, making it one of peculiar difficulty, and that the case afforded a very good illustration of the need for improved medical arrangements by the setting up of an expert medical board, and such steps are now being undertaken for the Workman's Compensation (Silicosis) Bill.—Parliamentary Intelligence, *Lancet*, 5572: 1320 (June 14), 1930.

Sixth International Congress for Accident Surgery and Labor Medicine—This Congress is to be held in Geneva, Switzerland, August, 1931, the last one being held in Budapest, September, 1928. The principal questions to be discussed are the following:

I. Slow Results and Evolution of Traumatic Wounds of the Spine
II. Traumatism of Blood-Vessels (Arteritis and Thrombophlebitis)
III. Cutaneous Infections in Relation to Labor Accidents
IV. The Previous State in the Consequences of Labor Accidents

In addition to these topics, others of particular interest in the field of industrial medicine will be scheduled. Authors will also be permitted to submit special subjects.

An exposition of radiographs, photographs, and mouldings, etc., will be held. Those wishing to exhibit should apply to Dr. Jentzer, Geneva, rue de l'Université 8.

The President of the Organization Committee is Professor Julliard, Geneva, and the General Secretary, Dr. Yersin, 3, rue de la Monnaie, 3, Geneva.

The American members of the Permanent International Committee are: Dr. Fred H. Albee, New York, N. Y., and E. R. Hayhurst, Columbus, O. The official delegates from the United States to the last Congress (Budapest), in addition to the two above named, were Dr. Francis D. Patterson, Philadelphia, Pa., Dr. Francis D. Donoghue, Boston, Mass., and Dr. D. J. Prather, U. S. Public Health Service. The American Committee for the Sixth Congress is now being organized.

Organic Fluorides as Refrigerants—Irrespective of otherwise satisfactory engineering and thermodynamic properties, all refrigerating agents previously used have been either inflammable, toxic, or both.

This paper covers a new class of re-

frigerating agents—organic substances containing fluorine. Some of them are surprisingly non-toxic. Dichlorodifluoro methane is less toxic than carbon dioxide, as non-inflammable as carbon tetrachloride, and very satisfactory from every other standpoint. Its toxicity has been studied by the U. S. Bureau of Mines and the results are included. (See Abstract, *A. J. P. H.*, 20, 7: 780 (July), 1930.)

A method of correlating the properties of this class of substances is presented, and the method of manufacture of dichloro-difluoro methane is described. The article is accompanied by two charts and one illustration.—Thomas Midgley, Jr., and Albert L. Henne, *Indust. & Eng. Chem.*, 22: 542 (May), 1930.

A Study of Silicosis in Rock Drillers—The author describes the findings of the committee organized by the New York Tuberculosis and Health Association to make a study of the hazards of rock drilling in Manhattan which was carried out by the association in connection with the Vanderbilt Clinic of Columbia University and the Metropolitan Life Insurance Company, during 1928 (see *J. Indust. Hyg.*, Feb., 1929). Following this study official and non-official agencies held a conference designed to lessen the dust hazard. Tests of a dust collection system were made which showed an efficiency such as to reduce 423,900,000 particles to 23,000 per cu. ft. minimum. The U. S. Public Health Service has adopted as a permissible limit 10,000,000 particles under 10 μ per cu. ft. Thus it is not necessary to remove 100 per cent of the dust.

A very valuable discussion follows the above paper by those present at the Buffalo, 1929, meeting of the International Association of Industrial Accident Boards and Commissions, part of which devolved around the Ontario Silicosis Law—which provides that there must be an exposure to silica for 5 years before a workman is entitled to compensation, during which time the exposure must be in Ontario.—A. J. Lanza, *Proceedings of the 16th Annual Meeting of the Internat. Assn. Indust. Accident Boards and Commissions, Bull. No. 511*, U. S. Bur. Labor Statistics, Apr., 1930, pp. 40–47.

FOOD, DRUGS AND NUTRITION

WALTER S. FRISBIE

The Blacktongue-Preventive Value of Lard, Salt Pork, Dried Green Peas, and Canned Haddock—In a former experiment (Abstract, this JOURNAL, 28: 1183 (Sept.), 1928), the blacktongue-preventive action of 16 selected foodstuffs was reported. The study here reported was made on pork lard, salt pork, dried green peas, and canned haddock. The same general procedure was followed as in the previous experiments.

Details are given as to feeding experiments, symptoms, etc. Results indicate that lard and salt pork are poor sources of the blacktongue preventive. Canned haddock contains the blacktongue-preventive factor and when used in large proportions the clinical manifestations of blacktongue are prevented. Dried green peas contain the blacktongue preventive, but in small amounts.

Fifty or more of the test animals on lard, salt pork and haddock diets showed

postmortem evidence of fatty degeneration of the liver.—Joseph Goldberger, G. A. Wheeler, L. M. Rogers, and W. H. Sebrell, *Pub. Health Rep.*, 45: 1297 (June 6), 1930.

Vitamin A and Carotene. II. The Vitamin A Activity of Red Palm Oil Carotene. III. The Absence of Vitamin D from Carotene. IV. The Effect of Various Dietary Modifications upon the Vitamin A Activity of Carotene—Carotene from various sources has shown vitamin A activity in the hands of certain investigators, but other pigments such as xanthophyll, lycopin, and the like, have been reported deficient in growth promoting powers. The unsaponifiable fraction of red palm oil has been studied and a method given for extraction of the carotene. Colorimetric determinations were made of the unsaponifiable matter in the isolated pigment in oil solutions both for the natural yellow and the color evolved with antimony trichloride.

In the biological tests on rats growth curves show that 0.01 mg. of the pigment was sufficient to restore growth in 2 rats compared to 0.2 mg. of the unsaponifiable concentrate paralleling the activities of carotene in unsaponifiable matter derived from carrots.

Other investigators have indicated that carotene does not possess antirachitic power. In confirming this young rats were placed on rachitogenic diets and various doses of carotene in peanut oil were administered daily for 35 days when they were autopsied and their bones examined. Results showed that carotene would not prevent rickets at a level of 100 times the minimal dose for vitamin A.

To determine the effect of dietary modification in carotene feeding two experiments were run; one group of rats received a basal diet of 15 per cent peanut oil and in the second group this was substituted by rice starch. A few of the rats received vitamin D as irradiated ergosterol. At cessation of growth carotene was administered at the 0.01 mg. level dissolved in peanut oil for 1 group and in paraffin for the group on the fat-free diet. Carotene restored growth in all cases although it was least effective where paraffin was the vehicle.

In the second experiment one group received the fat diet with vitamin D and the second group the fat-free diet without vitamin D, and at the cessation of growth carotene was administered at the same 0.01 mg. level. Similar responses in both groups indicate the activity of carotene in the absence of fat in the basal diet.—Thomas Moore, *Biochem. J.*, 23: 1267, 1929.

Bacteria of the Upper Respiratory Tract and Middle Ear of Albino Rats Deprived of Vitamin A—An investigation is reported in which a study was made of the relation of avitaminosis (A type) to bacterial invasion of the nasal cavities and middle ear. A bacteriological study of the nasal cavities and middle ear in 79 albino rats is presented for 4 groups: normal stock rats, vitamin-A-deficient controls, rats on a vitamin-A-free ration which developed xerophthalmia, and those on a like diet which did not develop the disease. Four types of organisms pathogenic to rabbits were isolated. These are classified as *Staphylococcus aureus, B. coli, M. catarrhalis A,* and *chromogen 6,* the last two being gram-negative cocci. From observations it was quite apparent that the pyogenic gram-negative cocci, especially *chromogen 6,* are encountered more frequently in the animals which show the most severe symptoms of vitamin A deficiency. It is indicated that these organisms gain a pathogenic hold during the depressed state of their host resulting from vitamin A deficiency. Some evidence is given that cod liver oil protects against bacterial invasion of the nasal cavities and middle ear.—R. G.

Turner, Dorothy E. Anderson, and E. R. Loew, *J. Infect. Dis.*, 46: 328 (Apr.), 1930.

Brucella Agglutinins in the Blood and Milk of Cows—Observations over a period of years are reported on the correlation of specific agglutinins for Brucella species in the blood and milk of cows. Two herds of 91 and 81 animals respectively served as the basis for these observations. In both herds it was observed that the disagreements between the blood and the milk agglutinins consisted largely of negative reactions in milk serum when the blood serum of the same animal was positive.

It is concluded by the authors that a negative agglutination test with milk serum is not a reliable indication of the Brucella agglutinin content of the blood of the same animal. Agglutination with the milk serum detected from 47 to 68 per cent of the cows in two Brucella infected herds whose blood serum reacted. These observations tend to confirm the generally accepted limitations of the milk serum test for Brucella agglutinins in the diagnosis of this infection in cattle.—Robert Graham and Frank Thorp, *J. Infect. Dis.*, 46: 260 (Mar.), 1930.

Beef Extract as a Source of Vitamin G—A series of experiments are reported for the purpose of determining the relative amounts of growth promoting vitamin G (pellagra-preventive) in commercial beef extract obtained from different manufacturers. Relative amounts of vitamin G were estimated by feeding tests with young albino rats using samples of beef extract from five different sources.

Fresh lean beef was examined for comparison. It was found that an intake level of 7.5 per cent of moisture-free beef extract from each of four establishments furnished sufficient vitamin G for good to excellent growth in rats. The same percentage of beef extract from the other establishment promoted only fair growth. In these experiments the average daily intake of moisture-free beef extract was approximately 0.80 gm. for males and 0.65 gm. for females. Twenty per cent of dried lean beef furnished sufficient vitamin G for fair growth and 25 per cent enough for excellent growth in rats.

The average daily intake of 25 per cent dried beef amounted to 2.7 gm. for male and 2.2 gm. for female tests. One pound of moisture-free extract appeared to contain approximately the same amount of vitamin G as 3.4 pounds of dried beef. Therefore, if the commercial products are compared, 1 lb. of concentrated beef extract contained approximately the same amount of vitamin G as 11 lb. of fresh lean beef.—Ralph Hoagland and George C. Snider, *J. Agri. Res.*, 40: 977 (June), 1930.

The Oxalic Acid Content of Vegetables Used as Greens—This study was made to compare the oxalic acid content of spinach with that of other leafy vegetables used as greens. The vegetables used were obtained in the open market during the summer of 1928 and 1929. Three different lots of spinach bought at different times were analyzed.

One sample of New Zealand spinach was used and two varieties of mustard were used. In addition, beet tops, turnip tops, kale and dandelion leaves were used. After cleaning and removing roots and stems, the remaining portion was washed, the surplus water dried off, and the fresh weight determined, after which they were dried to constant weight at a temperature of 80° to 85° C. The dried vegetables were then finally pulverized.

A modification of the Bau method for determining total oxalic acid content of coffee, tea, spices and vegetables (*Z. Nahr. Genussm.*, 40: 50–66, 1920) was used.

Tables are given showing the results of this experiment. The oxalic content of spinach, while varying in different samples, was much higher than is generally supposed, ranging from 0.486 to 0.692 per cent. Beet greens contained an amount equivalent or slightly higher than spinach and New Zealand spinach was found to contain considerably more. Dandelion greens, kale, turnip greens and mustard greens contain no oxalic acid. In view of the unexpectedly high percentages of oxalic acid in spinach it is worthy of note that large quantities of this vegetable are consumed apparently without adverse effects on health.—Alice E. Ryder, *J. Home Econ.*, 22: 309 (Apr.), 1930.

Cows Infected with Streptococcus Epidemicus (Davis)—Over a period of 4 years the authors have investigated 17 cows which were found to be shedding in their milk *Streptococcus epidemicus (Davis)*. The milk from 2 of the cows was associated with an epidemic of septic sore throat among consumers. The other 15 cows were giving milk which was mixed with a considerable quantity of other milk and used as food. No clinical symptoms of epidemicus infection were produced among the consumers of the milk from these cows. In none of these cases have the authors been able to establish any relation between a streptococcus throat infection in those who handle the cows. It was concluded that in most cases there is a probability that the cows were infected before they were brought to the farms where the infections were discovered.

Eight of these cows were found in certified herds of approximately 1,200 cows which have been regularly tested at monthly intervals. The other 7 were accidentally discovered in small herds.

As a result of their investigations, the authors indicate that the cows infected with *Streptococcus epidemicus* are rather generally and widely distributed and that this streptococcus undoubtedly occurs quite generally and frequently in milk used for direct consumption as well as that used for cheese and butter making without producing disease. The infection of cattle with this human type of streptococcus apparently begins as a mild disease which may become very severe or apparently continue a mild course.

There is a tendency for the infected portions of the udder to lose their milk secreting functions. In the group of mild cases to which most of the cows involved in this investigation belong, there is little or no change from the normal in either the udder or the milk, although *Streptococcus epidemicus* may be shed in large numbers.

Of the 13 cows in which the extent of the infection was determined by the investigators, 7 cows, 53 per cent, were infected in only one quarter, 4 cows, 31 per cent, were infected in two quarters, 2 cows, 16 per cent, were infected in three quarters, although the infection in the different quarters did not always occur simultaneously. The strains of *Streptococcus epidemicus* which were isolated are apparently all virulent and are identical with those strains isolated from epidemics from either man or cow. —W. D. Frost, R. C. Thomas, Mildred Gumm, and F. B. Hadley, *J. Infect. Dis.*, 46: 240 (Mar.), 1930.

Vitamin C Content of Three Samples of Japan Green Tea—The present work is a continuation of that previously reported (Abstract, this JOURNAL, 19, 11: 1262 (Nov.), 1929). Since only one sample was used in the first experiment and no attempt was made to determine whether the tannin might have been responsible for the results, it was thought advisable to make a more complete study. One strong tea infusion was made with enough water added to bring the final volume up to 100 c.c. instead of 125 c.c. In all other

respects the same experimental procedure was used as in the first.

In addition to the animals receiving the tea there were controls receiving cabbage and controls receiving the basal diet alone. The tea and cabbage were given 6 times a week. A table is given of the changes in weight and scurvy symptoms in guinea pigs.

Of the animals given the weaker infusion of tea, 3 survived the full 90-day test period, one died on the 83d day and all showed mild symptoms of scurvy at autopsy. The animals fed the strong infusion lived to the 80th and 81st day and scurvy symptoms were slightly more severe than those of the first group. The survival period of the animals fed on tea No. 2 was longer than that of the controls receiving no tea, and the scurvy symptoms were somewhat less severe, while animals on tea No. 3 showed no different results from the controls.

In every case where the tea infusion was fed in conjunction with cabbage the animals grew well and showed no signs of scurvy. It was concluded that the symptoms observed in the guinea pigs receiving tea infusion as the only test food must have been due to the lack of vitamin C and not to a poisonous effect of tannin.—Hazel E. Munsell and Charlotte H. Miller, *J. Home Econ.*, 22: 314 (Apr.), 1930.

PUBLIC HEALTH NURSING

EVA F. MACDOUGALL, R. N.*

Canada Has This Problem, Too—The present opportunities for service and development in the public health nursing field are not generally enough recognized by the large group of nurses graduating every year from the nursing schools. Dr. May Burgess, Director of the Committee on the Grading of Nursing Schools in the United States, says that of the nurses who have been graduated less than a year about 7 per cent hold public health positions, 24 per cent hold institutional positions, and the other 69 per cent are in the field of private duty.

Recent graduates drift naturally into private duty nursing or institutional nursing because they are more familiar with these types, because they usually require no further preparation, and because the nurses want to become self supporting quickly. It takes an adventurous type of girl to look forward to going out into a community alone to do public health work, and her nursing school experience has not given her much chance to develop initiative.

The nursing superintendent and her assistants cannot always give much time to individual guidance during the nurses' training, but they should know that there are certain times in the year when many private duty nurses are unemployed, whereas a qualified public health nurse is practically sure of steady employment. More continuous effort is needed to give information on public health nursing to nurses in training. If an affiliation with a good public health nursing organization is not possible, workers from public health nursing agencies could be brought in at times to interpret their work to the senior nurses, the hospital administrative staffs and alumnae associations.

* Please send printed matter or other material relating to public health nursing to Eva F. MacDougall, 126 State House Annex, Indianapolis, Ind.

Undergraduate nurses need to know, too, that postgraduate training is necessary even for the graduates of the larger and better known nursing schools in order to do public health nursing, yet the five universities giving courses in public health nursing in Canada are not getting enough well qualified applicants; during the year only 64 nurses graduated, and several times this number could have been placed. This means that nurses less qualified must be gotten to fill the positions that are opening.

The economic side presents difficulties, but any girl who has a real desire to become a qualified public health nurse usually gets there. There is great need of scholarships, however, for a public health nursing course does take more money.

Often too much is expected of the university public health nursing course. Every nurse graduating from one cannot be an expert in every type of public health nursing. All she has gained is an insight into the possibility of each, and before she can really do effective work she should have practical experience under nursing supervision. Medical supervision is not enough.

Two ways of meeting this situation (too little field work experience) would be either through the universities withholding certificates until a definite period of field work has been accomplished, or having the organization proposing to employ a nurse accept her on an instructive basis and at a lower salary for a period of time until she is better able to assume additional responsibility. With the demand for their services this safeguard has not been taken sufficiently into consideration.

—Elizabeth L. Smellie, The Problem of Securing Recruits for the Public Health Nursing Field, *Canad. Pub. Health J.*, XXI, 5: 240 (May), 1930.

Of Interest to School Nurses—The greatest need today is to perfect school health programs. Health education is at the crossroads. What we need more than propaganda and motivating devices is a program that is graded and scientific, based upon sound physical and psychological principles with educational objectives. Some of the needs of the school health education program are: (1) better manuals or courses of study that are graded; (2) training of classroom teachers; (3) training courses at normal schools; (4) summer school classes; (5) health score cards that are used and get results; (6) tests and measurements; (7) educational objectives linked with projects that result in achievement; (8) recognition of health education as an integral part of the curriculum.

To achieve a better health education program in the schools, the following criterions are essential: (1) adequate facilities, (2) sufficient time allotment, (3) trained personnel, (4) recognition and credit, and (5) better programs.—James Edward Rogers, What Can the Volunteer Agency Do to Assist State Departments of Education to Obtain Adequate Supervision of Health Training? Abstracts of papers presented at 26th Annual Meeting of the National Tuberculosis Association, Memphis, May 7–10.

Heard at the Biennial Nurses' Convention at Milwaukee in June.

Communicable Disease Control—Every nurse is a communicable disease nurse. Her first duty is to know the local laws. She has no responsibility to diagnose, but if she cannot give her suspicion of a diagnosis it is a sad reflection on her intelligence.

Ways to check the spread of communicable disease:

1. Through the schools. The health department should have a physical inventory of every individual in the community.

(a) The teacher should list the diseases of each child and get some idea of how far an outbreak may progress.

(b) Non-immune children should be sent home if there is an outbreak of communicable disease, isolated for a required number of days,

and a watch or warning letter sent home to the parents.

2. Educate the community to avoid contacts, and teach sanitation and personal hygiene. The public health nurse is one of the front line troops—she should provide explicit information to the mother regarding immunization, and she should give only *approved*, not debatable information.

—John J. Sippy, M.D., District Health Officer, San Joaquin Local Health District, Stockton, Calif., Communicable Disease Control.

Tuberculosis—In a study made in the hospital nursing schools in the Twin Cities 20 per cent of the pupil nurses reacted positively to the tuberculin test on entering, and 100 per cent reacted on graduating. In a similar study made in the ordinary schools 2 per cent of the entering students showed a positive reaction to the tuberculin test, and only 30 per cent of the graduates had a positive reaction. Of the 543 nurses receiving aid through the Relief Fund of the American Nurses' Association 258 have tuberculosis.

How do student nurses become infected?

Not through overcrowded living conditions. This in itself cannot cause tuberculosis; and not through overwork if there is a proper amount of rest.

The nurse does not report when ill or her illness is considered minor. At this time she should be carefully examined. The entrance physical examination is not sufficient, or periodic examination is not enough for finding tuberculosis. Eight out of every 100 are missed with the regular physical examination. There should be an X-ray and a tuberculin test.

One explanation of the high incidence of tuberculosis among nurses:

They are exposed to tuberculous patients. General hospitals accept tuberculosis patients daily though they are supposedly not admitted. The nurse can accomplish much and control the situation if all cases are regarded and treated as communicable disease problems.

The following rules would help the situation:

1. Every pupil nurse should have a routine X-ray and tuberculin test.
2. Every patient should have an X-ray and a tuberculin test. Only 1 case in 500 would then be missed.
3. Every hospital should reserve space for its tuberculous patients.
4. Nurses should be trained to care for tuberculous patients—there would then be better qualified public health nurses.

—J. A. Myers, M.D., University of Minnesota, Minneapolis, Minn., Tuberculosis. (Extracts from the notebook of Henrietta Landau, R.N.)

Recruiting

THE attention given in nursing magazines to recruiting students suggests that professional health work might claim more of the best of our college students if some one would lead the way in promotion effort to that end.

In "This and That in Nursing Education and Practice," by E. E. Cortright, a group of working ideas are offered for taking "the necessary measures to produce an intelligent public opinion on the facts in training schools as they are operated today."—*Am. J. Nurs.*, May, 1930.

E. G. R.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN*

A Public Health Nurse Informs Her Public—The *Monthly Bulletin*, Indiana State Board of Health (May, 1930), tells how a committee of five conducted a county public speaking campaign. In conclusion, the article states:

> The results of this tour have been far-reaching. News stories, bulletin board material, posters, public group meetings, suggestions and general follow-up visits made by the nurse—all receive far more intelligent attention now that the public has been systematically informed—in advance. Then, too, the eleven evening trips helped the five members of the committee become better acquainted with each other and with each other's common problems. A splendid foundation has thus been laid for a lasting spirit of understanding and coöperation between the school, agricultural, tuberculosis, medical and nursing groups and the entire country.

"Telling Marie Over the Telephone" (*Red Cross Courier*, Washington, D. C., June 16, 1930. *Free*)—A monologue was given at an award of certificates to a home hygiene class:

> On the speaker's stand stood a telephone receiver, and when the signal bell rang an honor student answered it to talk to a "friend." . . . "Hello! Marie! How are you? I'm fine. Well, Marie, I am glad you called me. I want to tell you about my Red Cross Home Hygiene class. You know I have told you several times special things I have learned in this class. Now I am through with the lessons and the American Red Cross is giving me a certificate—it's so pretty, with a Red Cross on it—and it means that I am better able to keep the family well, or to help them get well if they do get sick, than I was before. Goodness, Marie! I have learned the most things. I can make a nice, comfortable bed. . . .

Health Education Pioneer—The recent appointment of President Livingston Farrand of Cornell University as head of a special commission to study the possibility of increasing public health effectiveness in New York State reminds one that President Farrand was a pioneer in recognizing and encouraging the popular methods of health education of today. Under his administration of the National Tuberculosis Association there was carried on the first widespread service of public health information to the newspapers of the country.

Publicity Exhibits at Fort Worth—Space limits and hanging facilities make it uncertain how much or what kinds of publicity material it will be possible to display at Education-Publicity Headquarters at the Annual Meeting of the American Public Health Association.

Unusual forms and sizes are difficult to display. Groups of small items should be placed in a portfolio or scrapbook and not mounted on large cards. Three dimension material is desirable, but it is especially important that arrangements for space should be made in advance. An interesting display sent from New York to Minneapolis arrived without a plan or instructions. It could not be shown and was difficult to reship.

The only way in which a good exhibit can be planned is to select from available material what is best adapted to space and circumstances; so will you please write well in advance to the Editor of this department telling what you have to show which might help other health workers with their educational

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

publicity. You will receive a reply about October 1 stating when and where to send the exhibit, if there is space for it.

A Proposition for National and State Agencies—It is not possible through the resources of the Public Health Education Section to compile nearly so many collections of educational material as would be useful at the A. P. H. A. Annual Meetings. Workers are eager to examine collections of material from their specialized fields in addition to those collections which illustrate good practice in the preparation of different forms of publicity whatever may be the subject matter.

Could we have the active coöperation of national and state health groups?

Suppose the American Heart Association should make up a portfolio (or several of them) of its own newest and best educational and publicity material—together with that issued by state and local groups?

And then if other nationals would do likewise in their specialized fields?

The collections could include news releases, newspaper clippings, radio talks, bulletins or house organs, folders, etc., and of course lists of available educational material, material about the organizations and the services they offer.

Probably such collections should be displayed at the several headquarters of the nationals at Fort Worth—and afterwards be available at the home office of each national. A classified group of portfolios shown at the recent convention of the nursing organizations aroused so much interest that five additional sets are being prepared for loan to local agencies.

A somewhat different plan might be carried out by a state department or association. This would be a portfolio, or several of them, made up of the educational-publicity material of all types issued by departments and associations throughout the state. We hope that Texas and several other states will prepare such displays for Fort Worth.

If you like the idea help it along by urging it upon your national and state agencies.

A memorandum describing how to make up portfolios will be supplied by the editor of this department.

Social Hygiene in a Y. M. C. A.—"An adequate program of sex-education information that will give the secretarial staff an up-to-date scientific knowledge of how to deal with this subject" was requested by a Y. M. C. A. The reply from the American Social Hygiene Association is supplemented by suggestions for dealing with groups reached by the Y. M. C. A.—"From a Young Men's Christian Association." *J. Social Hyg.*, 370 7th Ave., New York, N. Y., May, 1930, pp. 303–309. Something to be brought to the attention of your local Y. M. C. A. One working idea could be carried out by any interested organization:

> Coöperate with the city libraries:
>
> In choosing and securing for library circulation enough of the best sex education literature, and advertising its availability, in the community, in suitable ways.
>
> In eliminating from circulation all out-of-date and undesirable material. This second item is fully as important as the first. Most libraries still carry many publications that are crude, misleading stuff. Perhaps two-thirds of the popular sex literature on the market at the present time is undesirable; hence intelligent discrimination is urgent.

Remember the Guest Editor—When you read this the year-round editor will be east of the Atlantic. For consideration in writing copy for this department to appear in the October issue please send your specimens and ideas—not later than August 25—to Dr. H. E. Kleinschmidt, National Tuberculosis Association, 370 Seventh Avenue, New York, N. Y.

Again the Annual Meeting!—Again it is a privilege to invite those concerned with any phase of educational publicity to use to the utmost the resources of the Public Health Education Section of the A. P. H. A. in connection with the annual meeting in October.

Here is hoping that the "Big Boss" will surprise you by proposing that "for the good of the order" you should begin planning to go to Fort Worth in October!

You might prepare the way by making up a list of the questions you would like to have answered and the topics you would like to discuss with fellow workers.

Last October at Minneapolis we had a group of portfolios containing educational and publicity materials which were classified under the following topics: cancer, children—schools, diphtheria, health examinations, heart disease, diet and weight, rural sanitation, summer warnings and advice, winter warnings and advice.

If you will send your 1929–1930 popular educational material on these topics it will be added to the display at Fort Worth. Please use this full address: Fort Worth Portfolios, Evart G. Routzahn, 130 East 22d Street, New York, N. Y.

The Public Health Worker's Vacation—Paul Sartorus, discussing "The Advertising Man's Best Vacation," quotes Abraham Lincoln:

> "For myself, I feel—though the tax on my time is heavy—that no hours of my day are better employed than those which bring me again within the direct contact and atmosphere of the average of our whole people." After describing his "promiscuous receptions" which occurred twice a week, Lincoln continued, "I call these receptions my *public-opinion* baths! . . . and the effect, as a whole, is renovating and invigorating to my perceptions of responsibility and duty."

Sartorus tells of various advertising men who use vacation to get new contacts with people and things. The flivver and tourists' camps did the job for one man. Another man goes into a new section of the country every year. The four chief men in one agency each go into a new section annually. One man spent the summer on a mid-western farm—and has done better work on farm paper copy ever since. When one does not wish to get far away from people, to get somewhere among "average" people and into some new life setting is urged for the one who is to plan or to write advertising (or health) copy. *Advertising and Selling*, 9 East 38th Street, New York, N. Y., June 25, 1930. *15 cents.*

What? When? Who? Why?—What questions would you like to have answered? What problems solved? What methods worked out? What topics in health education-publicity should be talked over in print or in conventions?

The editor of this department is making a collection of questions and topics—big and little—easy and hard—which might be answered in some meeting, or be the topic for a meeting, or be handled in this department.

Send what you have now. Send others at any time.

What About Billboards?—Health agencies and churches seem to be the chief non-commercial users of outdoor billboards. Notwithstanding the vigorous propaganda against billboards from several quarters, but little direct opposition has heretofore been directed specifically to the church and health people for their outdoor posting, but the E. D. C. forces have met enough criticism this year to lead health workers to a consideration of the problem.

What are the objections to billboards? Are the objections general, or are they qualified by certain conditions? In so far as the objections are valid, must

they prohibit health workers from the use of billboards? Are billboards a useful medium for popular health education? What are the principles upon which health agencies should base their discussions for or against billboards?

What ideas have you on the subject?

HEALTH " BEST SELLERS "

Child Health Day brought much further use of *The Child's Bill of Rights*, by President Hoover. This is probably the most frequently published and most widely distributed health propaganda in this country.

The pamphlet on *Consumption*, by Dr. A. Knopf, published in that period before the Great War in which some recent writers have urged that little or no health education was known, is probably the health publication issued in more languages and more countries than any other.

But the genuine " Best Seller " among health books is *Diet and Health*, by the late Dr. Lulu Hunt Peters. For about 2 years this book was among the 10 " best sellers " in non-fiction titles, frequently topping the list. It was displaced only with the coming of *The Story of Philosophy*, and its kindred group of phenomenal non-fiction sellers.

A lightness of touch in writing, with a rare perception of the points of view of the lay reader and his difficulties in carrying out health and medical instructions, drew a great audience for Dr. Peters, whose recent death was a serious loss to popular health education.

BELIEVE IT OR NOT

The house organ of a tuberculosis sanatorium carried on its cover page a picture in color—a hospital interne rescuing a nude woman from the clasp of an energetic skeleton! Possibly an inspiration to the professional audience to which much of the publication is addressed—but who knows?

A well-written pamphlet, making an impressive plea for the support of a state association, carries an application blank without the address to which it should be sent. On the back appear the individual addresses of all members of the executive committee but no hint as to which one should receive the application. When the signer hesitates, he is lost—usually.

EPITAPH

Here lies James,
Though feeling poorly—
He paid no doctor
Prematurely.
Also—post mortem
Diagnosis
Showed arterio-
Sclerosis.
How much more pleasant
My narration
Had James a
Health examination!—*Jean Pinney.*

A REQUEST

Copies of posters and other material, as well as suggestions helpful in preparing a health exhibition, will be appreciated by Dr. Samuel de Madrid, Professor in the Popular University at La Boca, Buenos Aires. *Address:* Corrientes 915, I. Buenos Aires, Argentine Republic.

HONORABLE MENTION

To Hygienic Institute (Department of Health), La Salle, Ill.: for annual report with full table of contents.

To Division of Infant and Child Hygiene, Indiana State Board of Health: for table of contents in annual report (labeled " Index " and placed at the back instead of in the front).

NEW

Pittsburgh's Health, Department of Public Health, Pittsburgh.

EDUCATIONAL MATERIAL

A new list of their " best sellers " has been issued by New York State Committee on Mental Hygiene, 105 East 22d Street, New York, N. Y.

A new list of pamphlet publications has been issued by American Social Hygiene Association, 370 Seventh Avenue, New York, N. Y.

The Canadian Dental Council, 170 St. George Street, Toronto, "through the generosity of the Canadian Life Insurance Officers Association," has issued two booklets with illustrations in color: "At the Gate" and "The Joy of Living." Also two reprints: "Romance in Dentistry" and "Back of the Last Frontier." *Free.*

Committee on the Costs of Medical Care, 910 Seventeenth Street, N. W., Washington, D. C., issues numerous pamphlets. *Write.*

"Health Wanted," Tuberculosis Committee, A. I. C. P., 105 East 22d Street, New York, N. Y., 8 pages; novel cover ideas; good layout of pictures on pages; few words. *4 cents.*

Improved Sanitation in Milk Production, by Department of Agriculture. Revised. Superintendent of Documents, Washington, D. C. *5 cents.*

"The Present Status of Maternal and Infant Hygiene in the United States," by Lee K. Frankel, Metropolitan Life Insurance Company, New York, N. Y. *Free.*

"Rickets—A Tale of a Gust of Wind." League of Red Cross Societies, 2, Avenue Velasquez, Paris, France. 5 mimeographed pages. *Free.*

Sanitation of Schools—Suggestions for Teachers. Superintendent of Documents, Washington, D. C. *5 cents.*

"Swimming Pools and Other Public Bathing Places." Wallace and Tiernan Company, Box 178, Newark, N. J. Reprinted from *American Journal of Public Health*. *Free.*

SCHOOLS—CHILDREN

"Visual Aids for Health Lessons" is a 6-page catalogue of material offered for local school use by the Health Education Department, Public Health Center, Oakland, Calif. Includes projectors, models, charts, posters, films, and film slides.

A series on "Lesson Planning in Health Education" began in the April issue of *Mind and Body*, New Ulm, Minn.

TIMELY TOPICS

The College of Agriculture, Cornell University, Ithaca, N. Y., issues a poison ivy bulletin which may aid in writing copy for use in other states. *Free.*

"A Noble and Loyal Friend" is the caption under a photograph of a dog on the cover page—inside is copy on "Rabies."—*Chicago's Health*, Department of Health. April 15, 1930.

Fundamentals of Camping, by Mary Alden Hopkins. *High School Service.* American Red Cross, Washington, D. C. May, 1930. *15 cents.* Material for house organ or news release. Includes simple statement on use of chloride of lime for purifying water.

Camp and outing standards can be furthered through publicity. A "Report Blank for Overnight Hikes, Week-end Camps and Gypsy Trips," obtained free from Girl Scouts (670 Lexington Avenue, New York, N. Y.), could be the basis of copy on the subject. The Girl Scouts also issue a "Troop Camp Report Blank" which includes questions of health significance under "Camp Site," "Housing," "Sanitary Arrangements" and "Hygiene, First Aid and Safety."

CONTEST—STORIES

The Journal of the Outdoor Life, 370 Seventh Avenue, New York, N. Y., offers prizes of $20.00, $10.00 and $5.00 for the 6 best stories, and $3.00 each for other stories it may use. "All stories must be in prose and deal in some way with tuberculosis although this need not be the outstanding theme." Closes September 1, 1930. *Write for details.*

BOOKS AND REPORTS

Practical Psychology and Psychiatry —*By C. B. Burr, M.D. (6th ed.) Philadelphia: Davis,* 1930. 378 pp. Price, $2.75.

Back in 1898 nurses in institutions for the mentally sick were not so fortunate as their present-day sisters in receiving training and enlightenment with regard to the nature and treatment of mental disease. Few if any nurses' training schools offered satisfactory courses in this subject and most of the hospitals for mental diseases were required to undertake the training in the fundamentals of psychiatry themselves if their nurses were to have any systematized knowledge about it. To be sure, there were several textbooks on mental disease nursing in those days but there was great room for improvement in them. To meet this need, Dr. C. B. Burr, then an assistant physician on the staff of the Pontiac State Hospital for Mental Diseases in Pontiac, Mich., decided to write a textbook that would facilitate the training of nurses in this particular subject.

Dr. Burr's textbook was entitled " Practical Psychology and Psychiatry " and some indication of its unusual value and popularity is found in the fact that this book has run through five editions since 1898.

Now in 1930 comes a new and revised sixth edition which is considerably enlarged over previous editions and which contains much new material. The mental nurse and attendant will extract a great deal of very solid value from this book for it is concisely written, free from frills, and gives unusually specific instructions for dealing with the 101 different problems that arise in the bedside or institutional nursing of the patients of this sort. In the section devoted to the definition and causes of insanity, Dr. Burr has called upon the remarkably wide and extensive experiences of his own knowledge of this work as gained by more than 45 years of experience in psychiatry. He has made free and liberal use of illustrative case material and he has also been generous in interspersing the technical material of the book with numerous of his own inimitable philosophies of life.

Faithfully read, it is believed that the nurse or attendant will find this book helpful in caring for those men and women in institutions who are undergoing " a prolonged departure from their normal standard of thinking, feeling and acting."

GEORGE K. PRATT

Bio-Dynamics: The Battle for Youth —*By Boris Sokoloff, M.D., Sc.D., Ph.D. New York: Covici, Friede,* 1930. 293 pp. Price, $3.00.

The author's conception, though by no means new, is, as presented, likely to interest those who desire aid in speculating on the limitedness of the cycle of life of man. It was not written for biologists or specialists. Though not a treatise on longevity, it maintains the hypothesis of immortality and develops Metchnikoff's theory of senility and disease. That " death is better than old age " is the basic idea presented, and the aim of the treatise " is a qualitative betterment of life from the biological point of view, an amelioration and conservation of energy."

The relation of regenerative capacity and potential immortality met with where there is slight differentiation (as in the infusoria) is contrasted with the almost nonexistent regenerative capacity, the evolution of death, and the potential immortality preserved only in

the sex cells found in highly differentiated organisms (such as man). The latter possess glands which appear to be the centers of dynamic and organizing energy in the organism. The imperfect present-day knowledge of the functioning of the endocrine glands permits the author merely to indicate the trend of experimentation. That these glands are powerful agents in promoting individualization, in preserving health, etc., he demonstrates.

Senility is defined and explained as "the result of disruption and degeneration of the endocrine gland system."

Bio-dynamics is defined as "the science of the creative dynamic forces of the organism." The final analysis of life remains a question.

The book is interestingly written and fairly well documented, but we can recommend it only to those who already have knowledge of the subjects treated.

ESTHER W. STEARN

Your Nose, Throat and Ears—*By L. W. Oaks, M.D., and H. G. Merrill, M.D. New York: Appleton,* 1929. 167 pp. Price, $1.50.

This book is written for lay people in simple and understandable language and will undoubtedly have its appeal.

The facts disclosed may enlighten the average person to such an extent that he will mend his unhygienic ways and thereby benefit.

Based upon an understanding of anatomy and physiology to be obtained from its perusal it is to be hoped that the layman will be inspired to obtain medical care early—and even more important, avoid the pitfalls of quackery.

ALEC N. THOMSON

New Uses for Capital—*By Robert S. Field. Philadelphia: Winston,* 1930. 136 pp. Price, $1.50.

In the words of the author, this little volume is an effort to promote a wider appreciation of the financial basis of our national progress. The essay is divided into three parts: capital and how it is invested; new objectives for investment (life and health, security and peace of mind, leisure and recreation); and methods of approach (philanthropy and taxation). Much of the basic material seems to have been assembled from reliable sources familiar to public health workers. There is relatively little new either in the approach or subject content. Most of the compilation was done while the author was engaged in graduate study.

IRA V. HISCOCK

Undulant Fever and Contagious Abortion—*By L. C. Bulmer, B.S., N.D.D. (Eng.). Birmingham, Ala.: Technical Service Bureau,* 1930. 66 pp. Price, $1.60.

This monograph summarizes much of the existing information concerning undulant fever in humans and contagious abortion in animals, and discusses the relationship of one to the other from the standpoint of transmission through meat and milk products. The material furnished affords information of interest to health officers, laboratory and agricultural workers. A useful list of chronological events—from the time Hippocrates described a protracted fever in 400 B.C., which Castellani and Chalmers believe was what is now known as undulant fever, through the reports of 1929 A.D.—is one feature. There is also a summary of comments from authoritative sources and a bibliography of 135 references.

IRA V. HISCOCK

Gesundheitswesen und Wohlfahrtspflege im Deutschen Reiche—*Von Prof. Dr. med. Bernhard Möllers. (2d ed.) Berlin: Urban & Schwarzenberg,* 1930. 634 pp. Price, 38 marks, bound.

The second edition of this much esteemed treatise on public health and welfare work in Germany will be welcomed in view of the post-war develop-

ments in this field in that country. These have been so far reaching as to require a very considerable expansion of and extensive modifications in the text of the first edition published in 1923. These affect, largely because of new legislation and regulations, the fields of the prevention of venereal diseases, child welfare, food control, care of sick and dependent classes, and social insurance. Statistics compiled last year in Germany indicate a falling off of nearly 50 per cent in the incidence of venereal diseases since the last survey in 1919.

Additions include new vital statistics resulting from stabilization following post-war aberrations, and sections on supervision of water supplies, public baths, sewage disposal, the hygiene of industry and of prisons, cancer campaigns, rheumatoidal complexes, and sport and gymnastics. The discussions of tuberculosis among prisoners, and on preparations of salvarsan and on the Wassermann reaction, trypanosomiasis, apprentice and investment insurance, are given an enlarged treatment. The regulations and legislation in public health matters in Germany, among German speaking peoples, and public health movements in the League of Nations are reviewed in the third section of the book.

On account of the inclusiveness and the up-to-dateness of this edition it will be of unusual value to American workers in public health in presenting current practice in a European nation which is well advanced in this field.

C. A. KOFOID

Public Health Aspects of Dental Decay in Children—*By Raymond Franzen, Ph.D. A. C. H. A.*, 1930. 121 pp. Price, Cloth $1.25, Paper $1.00.

It is with great regret that so much unusual mental ability as the author possesses has been allowed to err for lack of proper guidance. No one individual can be expected to master all branches of science, but before undertaking a subject requiring considerable highly specialized knowledge, the researcher should either familiarize himself with the basic scientific facts or obtain competent coworkers to furnish a knowledge of the field being studied. Any medically trained person should know that the correlation between a carious condition of teeth in horizontal relation to each other would be higher than between those in vertical or diagonal relation. A knowledge of elementary dental embryology teaches the reasons for this without a research.

The author after his exhaustive study " leans toward an organic or anatomic explanation of the sources of (dental) decay." Who does not? He seems to ignore the relation of environment to the development of teeth within the jaws.

Again, why should " treatment accorded to deciduous teeth have a protective influence upon permanent teeth "? Of course, corrections influence favorably the progress of decay in the teeth treated.

Dr. Franzen's conclusions on page 39 are correct. He admits the same are not new to the dental profession; then why so important to school administrators? A school board or superintendent would certainly employ a person trained in dentistry before undertaking a dental program for school children. The observations and conclusions of Chapter V on correlation of stain and tartar with dental caries are correct and in accord with accepted thought.

The application of his conclusions in Chapter VI are logical and interesting in that they confirm clinical observations with mathematical accuracy, which is of value although many practical workers in the field will question the wisdom of conducting such researches without adequate dental knowledge being made available as a guide for the

worker who is to apply the technics of modern research. We fail to see that this research has added anything to our knowledge that will help the public health official with the problems of dental disease among school children.

HARRIS R. C. WILSON

Social Control of the Mentally Deficient—*By Stanley P. Davies, Ph.D. New York: Crowell,* 1930. 408 pp. 12 ill. Price, $3.00.

Once every so often—but unhappily not often enough—a truly monumental book flashes across the horizon of our times. This is one of those volumes, although the reviewer is convinced that this book will not flash transiently, but will remain for many years a classic in its field.

Here is a portrayal of the development of both popular and scientific attitudes with regard to feeblemindedness from the earliest recognition of this condition down to the present day. Dr. Davies has wielded a facile pen in giving us a picture that is as fascinating as it is accurate. Do not suppose, however, that specificity has been sacrificed to the generalities that ordinarily are required by facile writing. On the contrary the book is replete with dates, statistics and other factual data that make it a valuable source-book for students of mental deficiency.

The author, in the 18 chapters that comprise this book, discusses such things as changing concepts of heredity, newer aspects of behavior, sterilization, segregation, the mentally deficient in the social order, and similar topics of interest. Each chapter is concluded with a useful bibliography, and Dr. Davies consistently gives chapter and verse to his references.

Perhaps the chief value of this book is found in the ability of the author to give us a step by step picture of the position of the mentally defective in the community. In so doing, he has given us also a picture in longitudinal section of the growth and changes in social thinking. This has been accomplished throughout with a commendable and highly unusual objectivity.

It is difficult, as one reads this book, to draw conclusions as to what may be the author's personal views, and since he has not set out to prove anything, but only to record, this lack of emotional bias gives the book a noteworthy standing.

Health officers, nurses, physicians, social workers, students of psychology, and others, cannot afford to ignore *Social Control of the Mentally Deficient.* Dr. Frankwood E. Williams has written a foreword in which he states: "It is a book that is of more value for the student of the social aspects of mental deficiency than any other book I know."

GEORGE K. PRATT

1930 Municipal Index—*Published by American City Magazine Corporation, 443 Fourth Avenue, New York, N. Y.* 855 pp. Price, $5.00.

The 1930 Municipal Index is the seventh edition of this yearbook prepared especially for city, town and county officials, state highway engineers, and all others interested in public improvement activities.

For the convenience of those using this handy reference book there are an alphabetical list of subjects, an index of manufactures, and consultants using the pages for advertising, and a classified list of products and services.

The subject matter is divided into 18 major sections, and sandwiched in between sections are advertisements which in a measure relate to the activities discussed in the preceding pages.

Sections in the 1930 Municipal Index which are of direct or indirect interest to public health workers deal with:

Administration, Planning, Finance, Law, Health and Welfare (Section 2)

Progress in Civic Center Development (Section 3)
Water-Supply and Purification (Section 7)
Swimming Pools and Other Public Bathing Places (Section 8)
Sewers, Sewerage and Sewage Disposal (Section 10)
Garbage, Ash and Rubbish Collection and Disposal (Section 11)
Parks and Playgrounds (Section 14)
National, State and Local Organizations (Section 17)
City Managers, Mayors, City Engineers, and Water Works Superintendents (Section 18)

Among the items touching the field of public health which are of special interest should be mentioned the suggested list of health books for city hall libraries; a bibliography on water-supply and purification; standards for public bathing beaches and wading pools; and statistics on garbage collection and disposal in 557 cities over 4,500 population.

The list of national organizations serving municipalities and local civic groups, arranged alphabetically, and providing the name of the executive officer and the address, will be welcomed by busy administrators.

A new feature of the *1930 Municipal Index* is the tabulation of city managers, mayors, city engineers, and water works superintendents in cities over 10,000 population, showing the annual salary of each. It is to be regretted that similar data for health officers in these cities are not included. Perhaps a suggestion on this might be made to the editors for the 1931 edition. A. W. FRAAS

A Survey of the Law Concerning Dead Human Bodies—*By George H. Weinmann, LL.B. Bulletin No. 73. National Research Council, Washington, D. C.*, 1929. 199 pp. Price, $2.00.

The law pursues us even after we are dead. Many important legal principles are involved in such matters—as the status of death itself, the ownership of dead bodies, their disposition, their exhumation after burial, and post-mortem examinations. This bulletin presents a studious and comprehensive survey of existing state laws on these points and of the common law where statutes are lacking. It will be valuable to lawyers and others concerned with medico legal problems of this nature, while sanitarians will be interested in the section outlining the laws regarding the transportation of dead bodies. It is well printed and has geographical and topical indexes. The author has made a real contribution to one phase of medical and public health jurisprudence.

JAMES A. TOBEY

Statistical Reference Data—*Compiled by Godias J. Drolet and Marguerite P. Potter for Committee on Neighborhood Health Development, March, 1930.* 28 pp., mimeographed.

This Statistical Reference Handbook has been assembled to assist in visualizing health districts for the proposed health centers of the City of New York. Health districts for the five boroughs composing Greater New York are shown on health area maps while on similar maps the general death rate and infant mortality rate for 1929 are charted.

Graphic presentations of the registration of new cases of pulmonary tuberculosis, the number of cases of the principal communicable diseases reported, the elementary school registration and the distribution of hospitals and clinics over the various districts are additional features of this booklet which will be invaluable to persons interested in neighborhood health development and in the provision of adequate health services throughout the city.

The trend in population of the various districts, comparative rates of mortality, contagion and birth are presented in tabular form and serve to interpret further the health conditions and needs of each particular area. A. W. FRAAS

Our New Religion. An Examination of Christian Science—*By H. A. L. Fisher. New York: Jonathan Cape & Harrison Smith,* 1930. 201 pp. Price, $2.50.

This book is described as a study of Christian Science as a social phenomenon. The author maintains that it "has succeeded negatively by failing to practice what it preaches or to regard what it dislikes," and in our opinion, sustains his thesis.

The book is divided into three parts: The Prophetess, The Creed, and The Church. Although the entire book is well documented, and it is hard to see where any exception can be taken to the statements made, the first two parts especially are historical, and apparently beyond controversy. The third part is, in our opinion, equally sound, though we presume the adherents of the cult will find some objections to it.

The whole book is written as a careful study, not in the spirit of controversy, but as an inquiry and analysis. We consider it one of the best of the many which have been written about this curious faith. M. P. RAVENEL

Yourself, Inc.: The Story of the Human Body—*By Adolph Elwyn. New York: Brentano's,* 1930. 320 pp. Price, $3.50.

This popularized account is sufficiently simplified so that it can be read with profit by a high school freshman, or any person who lacks any knowledge whatever as to the parts and functioning of the body. Sustained interest would seem to require less effort if the author had avoided unnecessary comparisons—although a knowledge of popular taste may have decided his use of them.

The scope, style and depth of the book can be estimated by a perusal of one sentence: "Yet the living body, though a coördinated mechanism with a definite identity, is in reality a complex world of its own, a commonwealth peopled by unaccountable thousands of citizens varying in size, and shape and professional activity." There are 17 chapters in the book on subjects such as the cell, the living membranes, the building trades and their strange associates, the transportation system, etc., and a short résumé of medical progress.

The 70 illustrations are excellent. The drawings and photographs, if studied by themselves, will give the reader some clear conceptions as to cell division, cell structure, various kinds of membranes, the main routes of body transportation, etc. In the first chapter of the book the author has included a few early drawings, as for example (Figure 5) muscle studies by Leonardo da Vinci, which the reader will find of interest. ESTHER W. STEARN

Etudes sur le Cholera—*By F. d'Herelle, R. L. Malone, and M. N. Lahiri. Alexandria, Egypt: Arturo Serafini,* 1929. 191 pp.

Therapeutic work with bacteriophage has attracted considerable attention during the past ten years and has aroused no less controversy. Consequently, when it became known that d'Herelle was undertaking experiments with cholera in India his reports were awaited with eagerness and criticised with avidity when they first appeared in preliminary form. The entire investigation has been reported in the volume under review and gives in minute detail every step of the work performed. The actual therapeutic experiments themselves form but a small portion of the work and have already been criticised because of the failure of others to obtain similar results.

One cannot read this book without being impressed with the extreme care with which much of the work was done and with the completeness of the description of the experimental method. This fact in itself makes it imperative that future investigators follow the tech-

nic described in attempting to confirm or deny results obtained.

These authors took advantage of the opportunity to insist again on the necessity for using naturally susceptible individuals in studies on infectiousness of a given organism and in immunity studies. They further point out a very marked difference between cholera vibrios freshly isolated from the host and organisms that have been long under artificial cultivation. In therapeutic work the use of bacteriophage reduced the mortality from 62.9 per cent to 8.1 per cent. The chapters on epidemiology and on general and specific prophylaxis are particularly interesting from the standpoint of public health.

The most obvious conclusion that can be drawn from this work is that it should be confirmed. There has already been an effort to repeat this work although on a much smaller scale and in another country. The results have been entirely contradictory. It should be mentioned that this work was undertaken by a member of the Pasteur Institute, and it is well known that many of the outstanding members of the staff of this institute are violently opposed to d'Herelle and his work. It is, of course, impossible to state which of the two results are acceptable. The significance of this work is sufficiently great to warrant its further investigation by someone familiar with the technic of bacteriophagy but not allied definitely with the supporters of d'Herelle or his active opponents. N. W. LARKUM

Sanitation, Hygiene, Bacteriology and Sterilization—*By Herman Goodman, B.S., M.D. New York: Medical Lay Press,* 1929. 191 pp. Price, $3.50.

This little book is one of the Cosmetic Handbook Series intended for the instruction of those known as "cosmetologists."

The author makes a plea for clean shops which we can endorse. The title shows that the author has attempted to cover a wide field. While we do not, in general, approve of books which give only a smattering of a subject, it must be admitted that the present one is correct as far as it goes, and, for the class of readers for whom it is intended, gives a considerable amount of very useful advice, which, if followed, will improve the profession. M. P. RAVENEL

An Index to the Chemical Action of Microörganisms on the Non-Nitrogenous Organic Compounds—*By Ellis I. Fulmer, Ph.D., and C. H. Werkman, Ph.D. Springfield, Ill.: Charles C. Thomas,* 1930. Price, $4.50.

The tables which form the contents of this book will be welcomed by those who are interested in the chemical changes produced by the activity of a great variety of microörganisms in non-nitrogenous substances.

Table 1 enables the reader to gain knowledge as to the general chemical action of a given organism. Table 2 is arranged so as to give information of the various products elaborated from a given substrate by the organism involved. Table 3 lists the types of substrates from which a given chemical has been reported as produced by the named organism.

A list of references is given which is more representative of the recent work. A few errors have crept in: Bio-chem. Z. 174 as of 1906, instead of 1926; Tuikow, instead of Tiukow; Iwatsuru, Rynzo instead of Ryuzo.

The arrangement of the tables is excellent. Their spacing will permit supplementing the given data by personal notes. The authors have purposely limited their material, emphasizing the data concerning the less common types of fermentation, but have included typical references to the common types.

ESTHER W. STEARN

History of Nursing and Sociology—*Compiled by A Sister of Charity of Emmitsburg, Md. Bridgeport: Brewer-Colgan Co.*, 1929. 279 pp. Price, $3.00.

This book could be called "A History of Catholic Nursing and Sociology," and if we accept the author's statement, that the extent of the service of the Catholic Church as a health agency in the United States ranks it in the first place among health forces not supported by public tax, we need to see public health and nursing more through Catholic eyes.

The author has tried to present briefly the important points in the history of nursing which every student nurse and graduate nurse should know. She goes back to the beginning of the history of medicine, shows the influence Christianity had on medical development, and then traces the history of hospitals, before she comes to the origin of nursing.

It is interesting to learn that there are about 30 Catholic orders doing nursing. The Sisters of Charity alone have 200 hospitals. There are in the United States nearly 400 Catholic schools of nursing which are fully accredited.

There are chapters on Organized Catholic Charities, and World War Contributions of American Catholics, though it is a bit difficult to see where nursing ties up with some of the material given here.

There is a long chapter on organizations affiliated with nursing and the contributions they are making to it. The author fails to show clearly how nursing ties up with the National Tuberculosis Association and the American Social Hygiene Association.

The second part of the book deals with sociology from a Catholic point of view and was contributed by Frederick J. Russel, C.M., S.T.D. Here the four chapters deal with Sociology, Hypnotism, Evolution, and Spiritism.

The material in the whole book appears to be put together in the form of a memorandum, and since there is little order in the arrangement, the lack of an index is perhaps a serious fault, though the author doubtless felt a full table of contents would serve as well. The paragraphs in the first part are brief and concise, but later on there is rather a tiresome amount of detail given in the descriptions of the organizations. There are frequent repetitions, and a great many typographical errors.

There is some new material here but not enough to draw the majority of nurses away from one or two other well known histories of nursing which contain all that nurses need to know of this subject in a much more readable form.

EVA F. MACDOUGALL

The Social Worker in Family, Medical, and Psychiatric Social Work—*By Louise C. Odencrantz. New York: Harper*, 1929. 374 pp. Price, $2.50.

Modern social work practices, methods and technics are described in this book in a manner to make it particularly valuable to executives and to those interested in the comparative study and analysis of professional standards. The American Association of Social Workers presents a job analysis study of positions in three fields to which the case work method is common—family, medical, and psychiatric social work.

The first medical social worker began her duties in a hospital in 1905. Present estimates give the number of hospitals and clinics in the United States which have social service departments at about 500, and these include over 1,500 workers.

To make the doctor's work worth while to himself and to the patient, it must be done (in hospitals) in coöperation with someone who has time and ability to teach hygiene and to see that it is carried out, to study the home conditions and report upon their part in causing or prolonging disease, and to help modify those conditions, financial, mental, moral,

which stand between the patient and recovery. This "someone" is the social worker—a man or woman trained to think of a human being as a whole just as naturally as the physician concentrates attention upon a part—(Cabot).

There are some 400 psychiatric social workers in the United States. The psychiatric social worker is defined as a social case worker who has had systematic instruction in the psychological factors underlying behavior and in the principles of physical and mental disease and their social aspects, and training in dealing with psychiatric cases.

In gathering the material for this book, the author consulted executives, supervisors, and staff members, workers "on the job," case records, annual reports, and studies. Public health as well as social workers and hospital administrators will find this an authentic source of valuable information regarding a relatively new profession.

IRA V. HISCOCK

Symposium on Physical Education and Health—*Compiled and edited by Jay B. Nash, Emma R. Frazier, and Marguerite Vollmer. New York: New York University Press,* 1930. 320 pp. Price, $2.00.

This publication assembles the papers presented in connection with the dedication of the new building for education in the School of Education, New York University, by 29 contributors.

The book is ". . . dedicated to Clark W. Hetherington whose philosophy has been the inspiration for many of these articles." This is a merited recognition of the fundamental service that Hetherington has given in the organization and development of physical education in New York University. It does not diminish in the least the high value of these papers to call attention to the fact that their record of Hetherington's contributions to modern thought in physical education is immensely greater than the quotation marks in this symposium indicate. His influence on the science and philosophy of physical education is, and for some years has been, greater than that of any other student in the field of education. His students and auditors have spread his progressive views universally so that they are now largely common property, stressed by authors and teachers, but unrecognized as products of his mind.

THOMAS A. STOREY

Insomnia. How to Combat It—*By Joseph Collins, M.D. New York: Appleton,* 1930. 131 pp. Price, $1.50.

Apparently as an interlude in his literary musings on more ponderous subjects, the doctor who has looked at love and life, at literature, and at nearly everything else that editors want, has produced a slim volume on sleep and its cultivation. In it he reveals most of the medical recipes for the treatment and cure of insomnia, with some cursory discussion of dreams, drugs, and diet.

The book is written in an interesting manner, even if it is padded and somewhat repetitious, and the information is eminently practical, even if the customary emphasis is placed on cure rather than on the prevention of the underlying causes of the defects discussed. Thus, much is said about indigestion in relation to insomnia, and something is said about the quantity of food consumed, but there is practically nothing about the quality of nutrition, which is one of the really essential factors in physical welfare. There is an interesting chapter on reading as a soporific. Perusal of this book ought to be quite conducive to sleep. JAMES A. TOBEY

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

Milwaukee, Wis.—In the *Bulletin* of the Milwaukee Health Department for February, 1930, is found an excellent summary of the city's health during 1929. Conditions on the whole were satisfactory, notwithstanding the largest influenza epidemic since 1918, and a measles epidemic. The general death rate was 10.5 compared with 10.9 for 1928. The infant mortality rate was 72 per 1,000 births, a slight increase over previous years, partly due to increased hospital facilities which draw ill babies from outlying districts. There occurred 13,198 cases of measles, from which there were only 25 deaths, a fact which indicates that Milwaukee mothers are taking measles more seriously and are providing better medical care. The typhoid and diphtheria rates were the lowest ever recorded, only 25 deaths occurring from diphtheria and 2 from typhoid fever, one of which was a nonresident.

Saskatchewan, Can.—The estimated population of the Province of Saskatchewan for 1928 was 851,000, of which 17.9 per cent resided in towns of 1,000 and over.

The 19th annual health report includes the Vital Statistics Report and is composed of 150 pages, 94 tables, and 26 diagrams, giving detailed information concerning every phase of the department's work. The report shows a total expenditure for health activities of $794,967 during the fiscal year 1928–1929, which is an increase of $108,331 over 1927–1928. Of the per capita expenditure of 94.4 cents, 62.1 cents were used as aid to hospitals and sanatoriums, 10.5 for child welfare, hospital management, sanitation, and disease prevention, and 3.6 for school health supervision. Regulations and legislation passed during the year include the medical examination of employees in hotels and other places, and provision for the formation of " Full-Time Health Districts."

On May 1, the School Hygiene Bureau of the Department of Education was transferred to the Department of Public Health, for which a new branch was created, the Division of Public Health Nursing. A nurse is in charge of each district, which comprises about 6 municipalities. Both school and home visiting is planned, thus including both school and preschool groups. Prenatal work is possible, and material aid is often given in procuring the government maternity grant. In 1928, 1,025 schools were visited and 31,737 children inspected; in 93 preschool clinics 3,546 children were examined, and 9,222 homes were visited.

During the year, 6 new hospitals were added to the list of those receiving government aid. The Province had, in 1928, 3.9 hospital beds per 1,000 population, or 1 bed for every 253.8 persons. Seven per cent of the population had hospital treatment, each patient remaining for an average of 12.3 days. Of the total births, 26.7 per cent took place in a government aided hospital. The report deals in detail with the hospital situation, tables being given which present for each hospital the bed capacities, nursing data, costs and expenditures.

Mississippi Flood Disaster—The American National Red Cross has published a highly interesting and enlightening report of 152 pages on the Mississippi Valley Flood Disaster of 1927. This official record of the greatest relief operations in the history of the organization, and of the administration of the large fund of 17 million dollars, should prove of interest not only to those directly affected by the floods, but

to all who aided in the work or contributed to the relief fund. The report is dedicated to the men, women and children whose sympathy and generosity made possible the relief of 637,000 persons suffering in this great disaster.

The report contains 7 chapters and 12 appendixes, including an excellent bibliography, besides 31 illustrations, charts and maps. The chapters deal with The Flood, Relief Fund Campaign, Organizing Relief Forces, Emergency Period, Reconstruction, Medical and Nursing Service, Financial Control and Audit. Medical and Public Health Measures are described in detail and include an excellent account of the work of nurses. One of the results of the flood was the establishment of full-time county health units in 85 of the flooded counties. The Rockefeller Foundation, in coöperation with the Mississippi Board of Health, also established a training station at Indianola where physicians, nurses and sanitary officers were trained in the practical procedures of public health work. There were 235 health workers, including 85 physicians, 84 nurses and 92 sanitary officers, in training at this center for an average period of 1 month.

Macon City and Bibb County, Ga.—The sixth annual report of the Joint Board of Health for the City of Macon and the County of Bibb, Ga., consists of 48 pages, well printed and bound in light blue covers. The estimated population of the county, including city, was 83,765, of which 46,124 were white persons. A death rate of 12.3 for the white and of 16.6 for the colored population is recorded. Infant mortality has been reduced from 156.6 in 1923 to 68.4 in 1929, while the tuberculosis death rate has declined from 152.6 in 1923 to 89.8 in 1929.

Pellagra cases last year showed a marked increase over the previous year. The department has for several years kept a supply of yeast for distribution to pellagra cases, and the deaths have decreased. Among the health officer's recommendations are noted the desirability for an increased sewage disposal system (1,266 houses not now being connected in the city of 63,475 population); provision of an incinerator; a contagious disease ward at the Macon Hospital; and provision for hospital care of advanced cases of tuberculosis.

There were 104 prenatal clinic sessions with an attendance of 1,669. There were 52 well baby conferences with an attendance of 535. There were 18,145 children examined by physicians. The laboratory reports 7,566 specimens examined. Expenditures for the year amounted to $48,315.

Brookline, Mass.—The 1928 report shows an appropriation of $258,355 and a recommended budget of $252,731 for 1929, including a hospital relief fund of $5,109.67 for indigents. A substantial amount has been asked for preventive work, especially the diphtheria vaccination clinic, the health center clinics, the dental and medical inspection of schools, and the school in bodily mechanics. Deaths from cancer show a 30 per cent increase, and pneumonia shows an increase from 25 deaths in 1927 to 44 in 1928.

It is exceedingly difficult for Brookline to compute its birth and death rates on account of the hospitals taking in so many outside patients, and natives of Brookline tend to go away for treatment. The death rate was 11.55, but corrected for residents it was 10.75. In 1927, 70 per cent of the births occurred outside of Brookline. The births and infant mortality rates include only infants of Brookline mothers and exclude births and infant deaths of non-residents. The live birth rate was 11.8 and the infant mortality rate 51.7.

At the health center, 76 preschool children were immunized. The 91 tu-

berculosis clinics made 590 examinations of 277 individuals, of which 106 were new. Twenty-one hundred and thirty home visits were made by nurses.

Lowndes County, Ga.—A good example of what may be done in preparing an attractive and complete report at a moderate expense is that by the Board of Health for 1929. The 16 mimeographed pages give a concise and carefully planned summary of the work for the year, still leaving room for a pleasing title page and artistic division headings.

The staff of the board of health consists of a commissioner, visiting nurse, technician, and secretary. The visiting nurse has under supervision in the county 65 colored midwives. They are organized into 3 clubs at the monthly meetings, at which the health officer or nurse is present. More than 50 per cent of the births in the county are attended by the midwives, nearly all of whom are visited and given instructions by the nurse. The infant mortality rate in 1929 was 42.2 per 1,000 births. A medical inspection was given to all school children in the county, totaling 2,558, of which 1,016 were found to have defects.

The general death rate was 11.7 per 1,000 as compared with 13.4 for 1928. Typhoid fever has declined from 45 cases in 1927 to 8 in 1929. A slight increase in diphtheria cases was noted, as well as in cases of scarlet fever, malaria, influenza and pellagra.

Glendale, Calif.—The annual report of the City Manager for the year 1928–1929 covers 100 pages, illustrated with maps, charts and statistical tables, accompanied by interesting descriptive text. The administration program of the year was carried out with a tax rate of $1.26 per $100 on the assessed valuation of taxable property. At the close of the year the City Council decreased the tax levy to $1.21. It is noteworthy that operation of the general government has been carried out during the last seven years without a deficit.

Joint arrangement between the city and county was made for the conduct of the health department. This added to the facilities and service afforded and reduced costs. Agreement entered into with the county health authorities calls for the erection and equipment of a health center building by the county on a site to be supplied by the city. Clinics held in the health department include those dealing with cases involving general medicine, surgery, eye, ear, nose and throat, gynecology, pediatrics, health education, orthopedics, physiotherapy, chest, dental service, and child welfare, and prenatal conferences.

The general health record of the city is good.

Dayton, O.—An infant mortality rate of 63 for 1929, as compared with a rate of 66 in 1928, and a general death rate of 11.6 are recorded in the annual report of the health department, published in the January, 1930, *Monthly Bulletin*. "The hub of the health wheel is the laboratory." There were 27,424 examinations last year. In the food inspection bureau, stress is placed upon such matters as healthy food handlers, wholesome food products and sterilization of utensils. In 1929, 17,955 utensils were collected from food establishments for laboratory tests and 13,465 food handler cards were issued after physical examinations were made.

The public health nurses made 62,720 home visits including 911 in homes of preschool children to urge physical examinations in the Summer Round-up. "The Summer Round-up of preschool children is proving an important factor in educating parents in the responsibility of health supervision of their children." All certified milk in Dayton is also pasteurized.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH. D.

Reporting on BCG—This preliminary statement of the effect of vaccinating children exposed to tuberculosis is eloquent of the care being taken to make the study scientifically significant.

ANON. Present Status of BCG Vaccination Against Tuberculosis. Weekly Bull. (New York City Dept. of Health), 19, 22: 173 (May 31), 1930.

The Children's Hour—The Health Commissioner of New York City proposes that physicians designate an hour at which they will examine well children and give advice to mothers. The physicians are urged to set a fee and permit their names to be listed. An eminently sensible scheme.

ANON. Preventive Medicine and Private Physicians. Weekly Bull. (New York City Dept. of Health), 19, 24: 189 (June 14), 1930.

Immunity to Poliomyelitis—Tests are reported which indicate a widespread immunity to poliomyelitis among individuals not known to have had the disease. This immunity originates in exposure, the virus being spread by person-to-person contact. A very convincing demonstration.

AYCOCK, A. L., and KRAMER, S. D. Immunity to Poliomyelitis in Normal Individuals in Urban and Rural Communities as Indicated by the Neutralization Test. J. Prev. Med., 4, 3: 189 (May), 1930.

Uterine Cancer—The part played by interference with labor in the production of uterine cancer is convincingly portrayed, and the obvious preventive measures are ably discussed.

BLAND, P. B. Remarks on the Prevention of Uterine Cancer. New Eng. J. Med., 202, 25: 1195 (June 19), 1930.

Occupational Mortality—A special analysis of an important investigation into occupational mortality, presenting some of the findings from the point of view of the industrial hygienist, will be found interesting by all sanitarians.

BRITTEN, R. H. Occupational Mortality as Indicated in Life Insurance Records for the Years 1915–1926. Pub. Health Rep., 45, 22: 1250 (May 30), 1930.

Syphilis Incidence Among Negroes—Blood Wassermanns performed upon a large and unselected group of rural negroes over 9 years indicate an incidence of 19.3 per cent of all males and 18 per cent of all females.

CARLEY, P. S., AND WENGER, O. C. The Prevalence of Syphilis in Apparently Healthy Negroes in Mississippi. J. A. M. A., 94, 23: 1826 (June 7), 1930.

Anti-tuberculosis Program—The future program differs from the present in intensity rather than kind, and we must continue to build more solidly on the same foundations upon which we have built for the past quarter century. So concludes the Managing Director of the N. T. A.

EMERSON, K. Where Are We Going in Tuberculosis Control? New Eng. J. Med., 202, 22: 1039 (May 29), 1930.

Mississippi Milk—The adoption of a standard milk ordinance in Mississippi has given three-quarters of the state's urban population milk of high sanitary quality and increased milk consumption.

FUCHS, A. W., and KROEZE, H. A. Results of the Operation of the Standard Milk Ordinance in Mississippi. Pub. Health Rep., 45, 25: 1412 (June 20), 1930.

Viosterol and Rickets—Doubters have arisen to question the rickets preventive potency of viosterol. The research reported here indicates that the recommended dosage should be tripled,

that all is not perfect in the manufacture or standardization of the product, but that viosterol is still a remarkable curative agent, reliable and very rapid in action.

HESS, A. F., *et al.* Newer Aspects of the Therapeutics of Viosterol (Irradiated Ergosterol). J. A. M. A., 94, 25: 1885 (June 14), 1930.

Teaching Parents to Teach Health—That more must be said than "teach your little son to eat spinach" will be evident to all who read this brief and interesting statement.

GRUENBERG, S. M. Parent Education and Child Health. Pub. Health Nurse, 22, 6: 283 (June), 1930.

Human Milk Flow—Records of milk production show significant output changes from hour to hour and day to day which must have an appreciable influence on the nursling.

MACY, I. G., *et al.* Human Milk Flow. Am. J. Dis. Child., 39, 6: 1186 (June), 1930.

Adult Serum and Measles—Immune adult serum was found to be almost as efficacious as convalescent measles serum. It has the advantage of being readily available and is free from the disadvantage of prejudice against the serum of strangers.

MORALES, E. G., and MANDRY, O. C. Relative Prophylactic Value of Convalescent and Immune Adult Measles Serums. Am. J. Dis. Child., 39, 6: 1214 (June), 1930.

What We Know About Tuberculosis—The things we know about tuberculosis that are not so, and the things we know we don't know. Another unsettling paper, which really settles; the kind that the English do so well.

MUNRO, W. T. Some Tuberculosis Problems. Med. Off., 43, 24: 267 (June 14), 1930.

Iodine and Goiter—This is noteworthy: "The administration of iodine to deficiently fed rats was definitely favorable to goiter production. . . . All grades of goiter were more common in deficiently fed rats to whose food iodine was added than in those to whose food iodine was not added."

MCCARRISON, R. A Goiter Survey in Albino Rats. Brit. M. J., 3621: 989 (May 31), 1930.

Epidemic Meningitis—Statistics of a Detroit epidemic of meningococcus meningitis (1928–1929) indicate an organism of unusual virulence. The fatality was highest in young children and adults; the colored population came in for more than its share.

MORTON, J. F., and GORDON, J. E. Meningococcus Meningitis in Detroit, 1928–1929. J. Prev. Med., 4, 3: 207 (May), 1930.

Controlling Infectious Diseases—That doubts exist in the mind of the British Medical Officer of Health about the infallibility of our conceptions of isolation, disinfection and immunization will seem strange to American sanitarians who are wont to be so sure in their beliefs.

MUIR, W. A. The Administrative Control of Infectious Diseases. J. Roy. San. Inst., 50, 12: 717 (June), 1930.

Syphilis Control Through Coöperation—Eloquent pleading by a master for an effective coöperation between practicing physician, public clinic, and other properly associated agencies.

STOKES, J. H. The Coöperation of the Practitioner and Organizational Forces in the Control of Syphilis. New Eng. J. Med., 202, 23: 1087 (June 5), 1930.

Public Health Administration—The author says: "I deem it more profitable to consider the broad basic principles of public health administration rather than the details of procedure." He considers them excellently.

MCLAUGHLIN, A. J. Public Health Administration. Pub. Health Rep., 45, 21: 1191 (May 23), 1930.

The School Child's Welfare—It appears that there is much that is wrong with the up-to-the-minute educational program. The author points the dangers to the school child's health and urges their correction.

VAN DER BOGERT, F. Education, Health, and Health Education. New York State J. Med., 30, 12: 708 (June 15), 1930.

Victor Clarence Vaughan—The life and works of this great leader in public health are fittingly portrayed in a series of articles in a memorial number of the magazine of which he was the first editor-in-chief.

VAUGHAN, W. T., *et al.* Victor Clarence Vaughan. J. Lab. & Clin. Med., 15, 9: 817 (June), 1930.

Gonorrhea Prevention—The status of gonococcus infection, what we are doing about preventing the spread of the disease, and what we ought to be doing about it are all excellently told.

PELOUZE, P. S. The Prevention and Treatment of Gonorrhea. New Eng. J. Med., 202, 26: 1233 (June 26), 1930.

BOOKS RECEIVED

BOARD MEMBERS' MANUAL. Prepared by The National Organization for Public Health Nursing, Inc. New York: Macmillan, 1930. 127 pp. Price, $1.25.

PHYSIOLOGY AND BIOCHEMISTRY OF BACTERIA. Vol. II. Effects of Environment upon Microorganisms. By R. E. Buchanan and Ellis I. Fulmer. Baltimore: Williams & Wilkins, 1930. 709 pp. Price, $7.50.

PHYSIOLOGY AND BIOCHEMISTRY OF BACTERIA. Vol. III. Effects of Microorganisms upon Environment. Fermentative and Other Changes Produced. By R. E. Buchanan and Ellis I. Fulmer. Baltimore: Williams & Wilkins, 1930. 575 pp. Price, $7.50.

THE PROGRESS OF LIFE. A Study in Psychogenetic Evolution. By Alexander Meek. New York: Longmans, Green, 1930. 193 pp. Price, $4.20.

HEALTH ESSAYS. By Horace W. Soper. Boston: Badger, 1930. 41 pp. Price, $1.00.

THE AMERICAN SCHOOL AND UNIVERSITY. 3d ed. New York: American School Pub. Corp., 1930. 571 pp. Price, $5.00.

PHYSICAL DIAGNOSIS. By Richard C. Cabot. 10th ed. New York: Wood, 1930. 529 pp. Price, $5.00.

THE ART OF SOCIAL DANCING. A Text Book for Teachers and Students. By Lawrence A. Hostetler. New York: Barnes, 1930. 140 pp. Price, $2.00.

REPORT ON FIFTH INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, LONDON, ENGLAND, MAY, 1929. By William Seaman Bainbridge.

TRAUMA, DISEASE, COMPENSATION. By A. J. Fraser. Philadelphia: Davis, 1930. 524 pp. Price, $6.50.

NEWS FROM THE FIELD

NATIONAL LEPROSARIUM AT CARVILLE

THE National Home for Lepers maintained by the U. S. Public Health Service at Carville, La., admitted 49 new patients during the year. The average for the year was slightly more than 300 patients. Nineteen patients were released as no longer a menace to the public health; 6 additional patients complied with the requirements for parole, but owing to their deformities and disfigurements which could not be cured, they elected to remain in the hospital rather than be subjected to the hardships and humiliations which are frequently the portion of many paroled lepers.

Chaulmoogra oil, by mouth, was used as routine treatment in 137 patients, the dosage ranging from 9 to 375 drops daily. One hundred and eighty patients are taking hypodermic injections of a special derivative of chaulmoogra oil. Dental work has continued. Supplementary treatment by means of physiotherapy and special light treatments are also given.

TEXAS TUBERCULOSIS ASSOCIATION

AT a meeting on June 16, the Texas Public Health Association changed the name of that organization to the Texas Tuberculosis Association.

NEW YORK STATE PUBLIC HEALTH COMMISSION

THE first meeting of the Special Public Health Commission recently appointed by Governor Franklin D. Roosevelt was held at the Academy of Medicine in New York City on June 5. Dr. Livingston Farrand, President of Cornell University, as Chairman of the Commission, presided. The Governor's purpose in appointing this Commission is to have a study made of the public health needs of the state and of the working of the various state and local health authorities and their relations one to the other. It is 17 years since a similar Governor's Commission in New York brought the state to the front rank in this important field.

Among the major topics to be considered are: adequate hospital and medical care for the sick; development of full-time local health service on the county basis and for the larger cities; and the future needs in mental hygiene.

The studies of the Commission will be devoted to making available to the people of the state the practical application of every proven means of health protection and disease control.

NAMED ON WHITE HOUSE COMMITTEE

DR. Theodore B. Appel, Pennsylvania State Secretary of Health, has been appointed a member of the public health administration committee and a member on the sub-committee of state health organization on President Hoover's White House Conference on Child Health. Dr. Mary Riggs Noble, chief of the preschool division of the State Health Department, is on a committee of medical care for children, and Dr. C. J. Hollister, chief of the dental section, is a member of the technical advisory committee on dental hygiene in schools.

GLOVERSVILLE PHILANTHROPIST DONATES FUNDS FOR PUBLIC HEALTH WORK

LUCIUS N. Littauer, Gloversville glove manufacturer and philanthropist, has presented $25,000 to Simmons College of Boston for the purpose of

broadening the scope of its work in public health. Mr. Littauer has advanced other large sums for research in pneumonia and the chemotherapy of cancer.

SCIENTIFIC EXPEDITION INTO BORNEO

DR. Bruce Magill Harrison, professor of biology at the University of Southern California, is spending the summer in the interior of Borneo on a scientific expedition sponsored jointly by the University of Southern California and Universal Pictures Corporation.

Dr. Harrison, who has had many years of preparation in biological research, has given valuable service in the division of biological sciences at the University of Southern California, has revealed rare ability for the undertaking of so important a task as this expedition.

UNIVERSITY OF SOUTHERN CALIFORNIA

DR. Wilder Dwight Bancroft, professor of chemistry at Cornell University and editor of the *Journal of Physical Chemistry*, gave the dedicatory address when the Hall of Science of the University of Southern California, the final wing of which has recently been completed, was formally dedicated on June 6.

FEDERAL BUREAU IS ORGANIZING TO ENFORCE PRODUCE LICENSING LAW

RULES and regulations for the administration of the Perishable Agricultural Commodities Act for the licensing of commission merchants, dealers and brokers, which was signed by President Hoover June 10, are being prepared by the Bureau of Agricultural Economics.

This law, intended to suppress certain unfair and fraudulent practices in the marketing of fresh fruits and vegetables in interstate and foreign commerce, requires the licensing of commission merchants, dealers, and brokers. All persons subject to the Act who plan to be in business on and after December 10, 1930, must obtain licenses from the Secretary of Agriculture.

LULU HUNT PETERS DIES

DR. PETERS on her way to London to attend a meeting of the Royal Sanitary Institute contracted pneumonia, and died in a nursing home in London on June 28. She was a member of the American Public Health Association and was travelling in company with the A. P. H. A. delegates enroute to Dresden.

She is well known for her writings on dietetics. Her best known book is *Diet and Health with Key to the Calories.*

Dr. Peters was decorated by both the Serbian and Albanian Governments for post-war child welfare and public health work in the Balkans, under the American Red Cross. She was a member of many medical organizations.

NEW MEXICO PUBLIC HEALTH ASSOCIATION

THE 6th Annual Meeting of the New Mexico Public Health Association was held in Albuquerque, June 3 and 4. The following officers were elected: *President*, Dr. J. G. Holmes, Alamogordo; *Vice President*, Marie A. Brunk, R.N., Las Cruces; *Secretary-Treasurer*, Paul S. Fox, C.E.

The next annual meeting will probably be held in May, 1931, in Santa Fe.

VACCINE TO CURE COLDS

DR. J. A. Pfeiffer, associate of the University of Maryland Medical School, believes he has discovered the micrococcus that causes the common cold, and that he has succeeded in separating it and making a vaccine that will immunize the patient from one to three years. This is the result of seven years' research.

WILLIAM L. STEVENSON

ON June 2, Franklin and Marshall College at Lancaster, Pa., con-

ferred upon William Lawrie Stevenson, Chief Engineer of the Pennsylvania State Department of Health, the honorary degree of Doctor of Science. Mr. Stevenson is a member of the class of '97 of the University of Pennsylvania and the early years of his work were with the City of Philadelphia, where from 1908 to 1918 he was assistant engineer in executive charge of experimental and design work on sewage treatment. During the World War, he was Sanitary Engineer for the U. S. Shipping Board and in charge of their Clearance Bureau at Philadelphia. Since 1919, he has been with the State Department of Health and since 1922 Chief Engineer. He is a Fellow of the A. P. H. A., Public Health Engineering Section.

JANE H. RIDER

ON June 4, the University of Arizona conferred upon Jane H. Rider, Director of the Arizona State Laboratory, the degree of Civil Engineer for outstanding work along public health engineering lines in Arizona. Miss Rider is a graduate of the University. Since 1913 she has been with the Arizona State Board of Health Laboratory and director since 1919. She is a member of the A. P. H. A.

PERSONALS

DR. JOHN O. MCREYNOLDS was elected to the presidency of the State Medical Association of Texas recently.

DR. HAROLD H. GOLDING has been elected Health Officer of Peekskill, N. Y.

DR. EDWARD A. LANE, formerly assistant director of the Division of Communicable Diseases, Massachusetts Department of Public Health, has recently become director of communicable disease control of the Westchester County Health Department, N. Y.

DR. WILLIAM E. BULLARD, Health Officer of Larchmont and Mamaroneck, N. Y., died recently at Saratoga Springs.

DR. JAMES W. DOUGLASS, Health Officer of Ava, N. Y., died recently.

DR. JOHN B. WEST, Washington, D. C., sailed in June for Abyssinia, where he will become physician to the emperor of Ethiopia.

DR. GEORGE R. ENLOE, Fort Worth, Tex., was elected president of the Texas Railway Surgeons' Association at its annual meeting, May 5.

CONFERENCES

August 26–28, Eighth Texas Sanitarians Short School, held with Texas State Department of Health and the City of Amarillo, Amarillo, Tex.

September 8–12, American Congress of Physical Therapy, St. Louis, Mo.

September 29, week, National Safety Council, Chicago, Ill.

October 11–19, National Dairy Exposition, St. Louis, Mo.

October 20–25, American Hospital Association, New Orleans, La.

October 22–24, International Association of Dairy and Milk Inspectors, Cleveland, O.

October 27–30, American Public Health Association, Fort Worth, Tex.

RECENT PUBLICATIONS
IN THE
BOOK SERVICE DEPARTMENT

Board Members' Manual. For Board and Committee Members of Public Health Nursing Services. Prepared by The National Organization for Public Health Nursing. **$1.50**

Science in the Service of Health. By ELLIOTT R. DOWNING. **$2.00**

Physiology and Biochemistry of Bacteria. Vol. II. By R. E. BUCHANAN AND ELLIS I. FULMER. **$7.50**

Physiology and Biochemistry of Bacteria. Vol. III. By R. E. BUCHANAN AND ELLIS I. FULMER. **$7.50**

The Healthy-Minded Child. Edited by NELSON ANTRIM CRAWFORD AND KARL A. MENNINGER. **$1.75**

ORDER FROM

American Public Health Association
370 Seventh Ave. New York, N. Y.

Adequate Sanitation can be had.

PURO

the drinking fountain with the Automatic Self-cleaning Filter will supply it. Built for heavy service, their rugged construction fits them for years of industrial service.

Many designs to meet your requirements. Your copy of our catalog is ready to mail now. Ask for it.

Puro Sanitary Drinking Fountain Co.
Haydenville, Mass.

Summer Problem No. 3—DIARRHEA

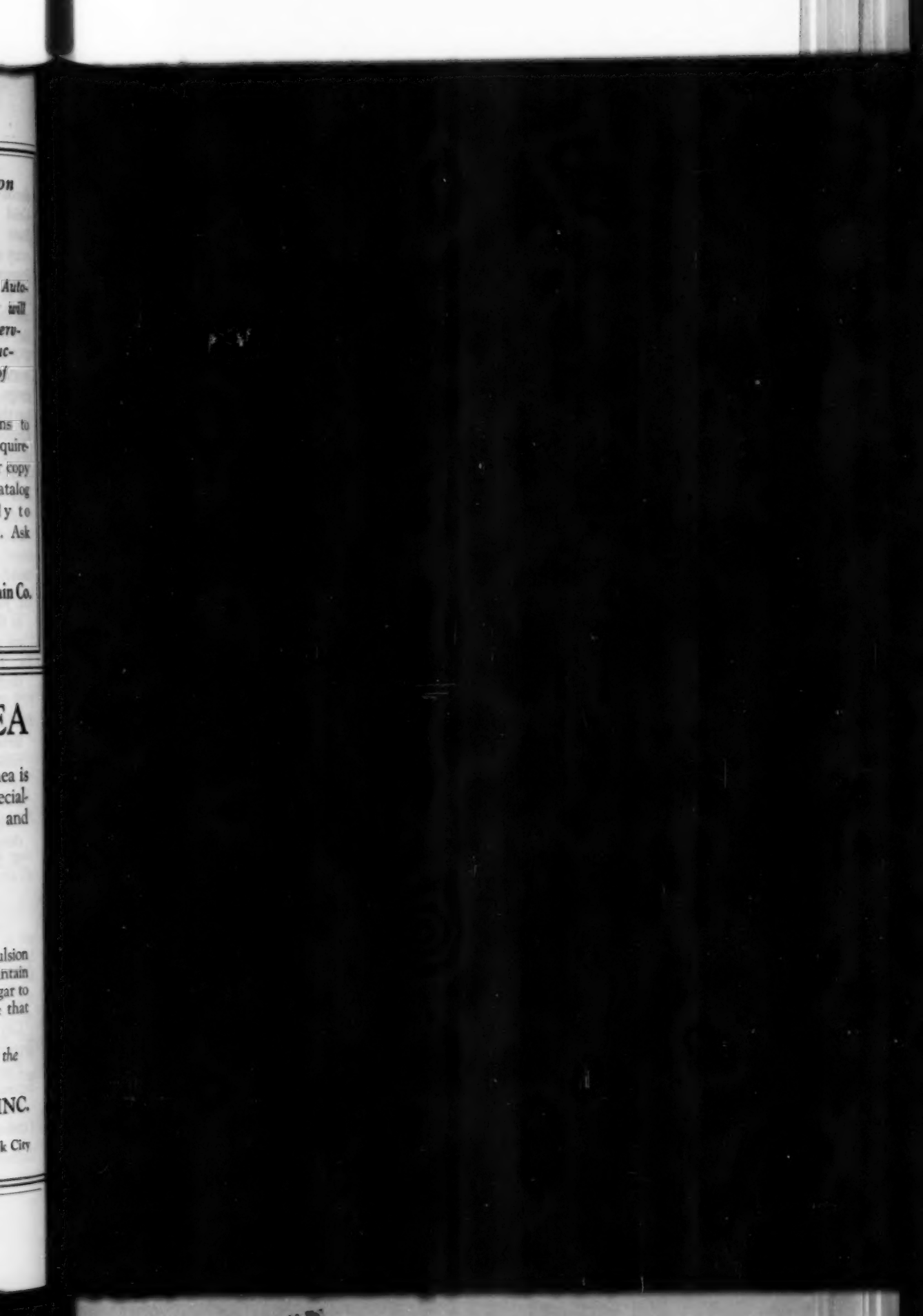
AGAROL is the *original* mineral oil—agar-agar emulsion with phenolphthalein and has these special advantages:

Perfectly homogenized and stable; pleasant taste without artificial flavoring; freedom from sugar, alkalies and alcohol; no contraindications; no oil leakage; no griping or pain; no nausea or gastric disturbances; not habit forming.

Next to constipation, fermentive diarrhea is a most frequent problem in summer, especially in children and the aged. Thorough and regular elimination need consideration.

AGAROL

the original mineral oil and agar-agar emulsion with phenolphthalein, will prevent stasis, maintain normal elimination. No alkali, alcohol or sugar to cause difficulties. And Agarol is so palatable that children take it gladly.

Two regular size bottles are at your service for the asking. Send for them.

WILLIAM R. WARNER & CO., INC.
Manufacturing Pharmaceutists since 1856
113 West 18th Street -:- New York City